YACHTING

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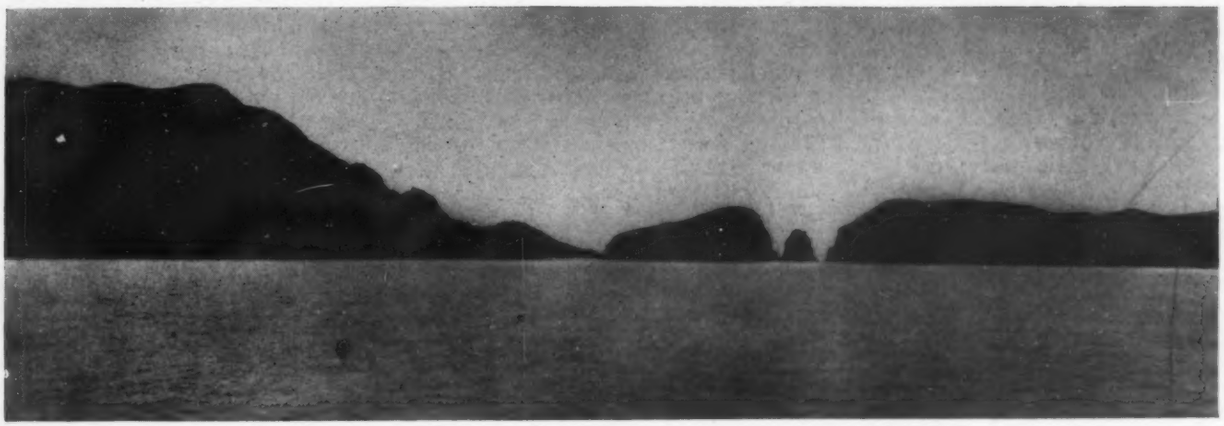


A PIECE OF THE ANACAPAS—THIS WAS DEAD AHEAD WHEN THE FOG LIFTED

In the Wake of Cabrillo and Vizcaino

Being the Account of a Cruise Along the Wonderful Pacific Coast

By WILLIAM M. McCOY

"Out beyond the sunset, could I but find the way,
Is a sleepy blue laguna which widens to a bay,
And there's the Blessed City—so the sailors say—
The Golden City of St. Mary."

IF it were possible to read the secrets of the hearts of men, I am confident that the cherished scrolls of all yachtsmen would reveal illusive, haunting dreams of some wondrous port beyond the horizon, something very like the thought imprisoned by John Masefield in the four lines above. Of such things have the thoughts and dreams of adventurers been woven since time began. And the heritage of all the voyagers of all time is the yachtsman's, for each voyage, no matter how modest, may lead to "a sleepy blue laguna which widens to a bay."

And once again the yachtsman is blest, for in following in the wakes of the explorers whose keels furrowed virgin seas, he is voyaging in the same ocean—and it is just as wet, as rough, as calm, as colorful, as alive with moods as in those days upon which the sun set centuries ago. The same winds blow and the same stars shine, and while his craft may be handsomer and abler, if less picturesque, the same seamanship must overcome the obstacles the black bearded crews of master seamen conquered.

Cabrillo explored the coast of what is now Southern California as far north and west as Point Conception in 1543. The battlemented old point turned him back, and while wintering in a harbor of San Miguel Island, which he had just discovered, he died. He had been looking for a passage around California to the Golden City—to the fabled Indies. The Spanish and Portuguese seamen of those days pushed their explorations with remarkable vigor and daring, but it was many years before another ventured so far, but in 1602–3 Vizcaino sailed northwest.

California was supposed to be an island, "close to the terrestrial paradise," according to the ancient records, and if he could "but find the way" he would raise the Golden City. The Spanish had long before crossed the American continent, and had established cities and ship yards on the Pacific Coast seventy-five years before the Pilgrims landed at Plymouth, so Cabrillo and Vizcaino sailed from what is now Mexico, commissioned by the Viceroy of New Spain. Vizcaino rounded Point Conception, and went on, discovering Monterey Bay, and eventually Cape Mendocino. So thorough was his exploration, that thirty-two charts of the coast were made from his maps, soundings, and log. Later the galleons from Manila always made Cape Mendocino, and then sailed down the coast to San Blas.

The yachtsman sailing in the wakes of these two, who were the first white men to raise these shores, is blest again, for aside from charting the coast the government has done as little as possible to mar the enjoyment of exploration. From Los Angeles Harbor to Monterey Bay is a little farther than from New York around the Cape to Marblehead. But we have no Sound, the whole way is open sea without a single harbor of refuge, and, counting those at each end, but nine lighthouses mar the landscape. There are no life saving stations whatsoever. Naturally all mariners applaud the forethought of our statesmen in refusing to blemish the virgin beauty of the coast, especially as we realize that lighthouses and life saving stations would only save life and property, while the dredging of Pollywog Dell will save votes.

The morning of July 16th was absolutely breathless, and we warped the Dreamer in alongside the floating locker-house and swelteringly stowed the non-perishable stores for a three weeks' cruise, and made everything shipshape for sea. Casting off at eleven-thirty, our husky little fifty-foot auxiliary stood down the inner harbor under power.

The regular skipper was not with us, as a desert storm had blown one of his mines inside out, or something. I am not sure the shaft and tunnel were sticking up in the air, but he told us everything to do with the mine was. The Skipper for the cruise shoved hard on the wheel, for the poor, unregenerate swab had swallowed the bait, hook, sinker, and some fathoms of line of one of "Dem gals in 'Frisco." He was to meet her in Monterey, and he was so hopelessly gone that he was in a hurry to get there. Jack, Prog, and I made up the crew, while in the galley Judy rattled the pans. We had shanghaied him from the kitchen of a dining car, and he certainly could cook when he wasn't seasick. To judge by his own confessions he was the brightest night blooming cereus when it came to "yaller gals," and a regular vacuum cleaner when it came to hen roosts.

At a good seven knots we slipped down the harbor which Cabrillo discovered in 1543, and in which his log records his riding out a "great tempest from the

southwest." Passing Dead Man's Island we crossed the outer harbor, turning the white beacon in the great fist marking the end of the breakwater's long arm at one-thirty. Rounding the Point Firmin whistling buoy, we laid our course west, one half north, for Point Vincente. No breeze was in evidence, and we stood up the coast under power, skirting the kelp fields edging the rusty Palos Verde cliffs. No light marks Point Vincente, but as it is a sheer cliff a few hundred feet high it is easy to see on a clear day, and we found a little breeze waiting for us there.

Off Rocky Point we made sail, and stood west by north across Santa Monica Bay under canvas, being just able to lay our course on the port tack. Cabrillo called this wide, shallow bight, "Bahia de los Fumos," because of the great number of signal smokes he saw rising from the plain back of the beach. It is ten miles wide, with low shores, but westward of it the Malibu Mountains come down to wade in the sea, and for the fifteen miles to Point Dume, bold, rugged cliffs rise from the water's edge, and continue on again another fifteen miles to Point Magu.

A dozen pleasure resorts form a picket fence about Santa Monica Bay, but the mountains are practically uninhabited, and as no light marks either Point Dume or Point Magu, and night would soon be with us, we naturally laid a course which would not interfere with them, planning to go outside the straggling Anacapa Islands, pass between them and Santa Cruz Island, and on to Santa Barbara. Going up the coast the prevailing winds are all almost ahead. Below Point Conception, where the coast trends westerly, they are westerly. Above it the coastal trend is northerly, and the winds are northerly.

The breeze was light, but with everything aloft we made fair time all night. In the middle of the "Graveyard Watch," when I was at the wheel, a tug bound south deliberately held her course across our bows, and if we had not given way promptly she would have run us down. There was no doubt her crew saw us, for in the pale moonlight the yacht, under all canvas, could hardly be missed, even if they did fail to see our lights. The tug carried no towing lights, but I waited a little before putting the yacht on her course again. As no sign of a tow appeared, we swung back. Suddenly Jack, on lookout, yelled as if Neptune had speared him. With the helm a-weather, I slacked off the main sheet. We had given way just in time, for a huge steel hawser lifted out of the water to port, and scarce three fathoms away. We waited what seemed quite a while, and then a huge log raft several hundred feet long sloshed past, with no light of any kind on it.

The fog came when the morning ought to have, but the breeze held. Along about seven o'clock the wind began cutting up capers, and then it slit a hole in the fog. In an instant we saw that if we held that course much longer the Dreamer would be called upon to show her ability as a mountain climber, for the Anacapas were dead ahead, and in the fog seemed about to be speared by the bowsprit. We had been looking for the gas flare on the eastern end of the islands, and the current had set us half a mile further north than we realized. This current varies so much that its flow is hard to gauge. Coming about, we worked around the island. When we passed the Arch of Cabrillo we could see Santa Cruz Island off to the northwest, but in the fog we didn't see that gas flare on the towering cliff at all.

An hour later the wind deserted us, and

DREAMER IS AN ABLE AUXILIARY SCHOONER

we gaily sallied into the engine-room. In a little while we were not so gay, and as time departed so did all gaiety, for the engine would not start. We were becalmed in a heavy sea, and the slap and slat of canvas and tackle, and the splash and sough of the water under the overhangs was hardly music.

The Dreamer has had three owners, and the middle one was a mechanical engineer who built gasolene engines. Instead of leaving the standard make engine in her, he had to build a special one, with all sorts of frills. No matter how long it had been idle, if he just strolled into the engine-room it would bark a welcome, and chug-chug until he told it to go lie down. The child of his particular fancy was an ignition system of the high tension variety which, when off its feed, required the services of a professor of technology as a diagnostician. Since this cruise all this has been changed, but that did us no good then. In these special engines it is the little things which cause most of the trouble, things which are soon discovered and eliminated from standard models. This engine was a big, four-cylindered brute, and a regular mule to crank. Its back geared rear starter should have been fitted with a donkey engine. We couldn't start it, and at last gave it up, after twisting its tail for an hour.

Along about ten o'clock we picked up a little breeze and worked over to Santa Cruz Island, and through the Anacapa Channel, passing arched San Pedro Point close abeam. The Santa Barbara Channel was smooth, and sparkled under a perfect sky. The breeze was light, but fair, and as we slipped through the shimmering green water Santa Barbara rose slowly, a jewel on the edge of an emerald sea, nestling in its majestic setting of sky-propping mountains. But five o'clock found us becalmed a couple of miles out. Maybe you think we loved that dead engine. If it hadn't been so blasted heavy we would have thrown it overboard. All night we flopped, and did not make port in the open roadstead harbor until ten o'clock the next morning.

Before we went ashore to hunt up an engine man, Jack and I decided upon another look. The anchorage was fairly quiet, and the engine seemed easier to crank. While he turned I watched the wheels go round, and noted that the cam shaft was turning only intermittently. An examination disclosed the fact that the pin doweling the cam shaft to the bevel gear which turned it had dropped out. After a prodigious search, we found the pin, drove it to place, turned on the switch, and the confounded engine sat up on its hind legs, said: "Wuff-wuff, chug, chug!" and began wagging its tail. The crew of us could have been bought very cheaply just then, but we would not have been worth even that price.

After spending the day and evening in Santa Barbara, we put to sea again, under power, rounding Santa Barbara Point, with its whistler and little lighthouse, at ten o'clock that night. Off Goleta Point a light northwest wind met us, and we made sail, holding west for Point Conception. A very heavy head sea began drenching us when we had Coal Oil Point abeam, and it bothered the Dreamer considerably, killing her headway in the light breeze. But in an hour the wind began shifting, and working around to the east, so that she was soon running free and making good time. The steadily increasing head sea made steering decidedly difficult. The combers were so steep that when the yacht poised on top of one, both ends seemed to be sticking out in the air, and she would start to broach before the rudder could take hold.

As morning drew near the wind hauled around into the northwest again, fell light for two hours, and then came up strong with the day. The seas were growing bigger and steeper all the time, with now and then one threatening to break aboard. It was clear, bright, and cold out where we were, but misty inshore. At eight-thirty the sun burned up the haze, and we sighted Point Conception light about eight miles off our starboard bow.

Cabrillo and Vizcaino must have each thought they had reached the passage around

California for which they had been searching, as they approached Point Conception. The coast breaks sharply from westerly to northerly, and with its miles of sheer cliffs ending in a massive rock headland more than two hundred feet high, it surely looks like the end of the land. The stern old point forced Cabrillo back, but Vizcaino fought his way around. Even then Conception had her revenge, for the adventurer found no Atlantis—no passage to the Indies for which he searched.

And now it was plain that old, rock-fanged Point Conception intended challenging our advance, was summoning her warriors of wind and sea to force us back. The glass was falling, the seas breaking against the yacht and shattering into spray, and the wind piping a shrill battle cry in the rigging.

Coming about, we stood inshore on the port tack under all lower canvas, figuring to get under the point where reefing would be easier. Her rail buried deep, the spray flying to the spreaders, the Dreamer tore along, making really excellent weather of it, considering the full gale and the colossal sea. The big rollers lunged toward us with awe inspiring hisses, some of them looking twenty feet high, and about two hundred feet apart. The wind tore their crests to blinding, glittering crystals, and every other one was breaking. The white water foamed over the Dreamer's weather bow, as each sea struck her, but she shook herself free, and it cascaded into the millrace above her lee rail, and she raced on.

As far under the point as we dared go, we came about, and the skipper nursed her along while the rest of us fought canvas gone mad with a forty-mile gale. In half an hour we had lost a couple of finger nails and some much prized skin, but we had her snugged down, the staysail furled, and under jib, and close reefed main and fore we stood to sea again on the starboard tack. With extra lashings on the boats and everything movable, the Dreamer seemed confident, eager to meet the storm.

The wind had climbed another ten knots, and was flattening the whole sea by literally blowing the entire tops off the big, tumbling billows. But the combers were so steep there was no climbing them, and they crashed into the yacht with stunning force, shattered into spray that leaped the masts, climbed over both sides of the bow, and buried us in a wild welter. But the Dreamer seemed glad for the chance to show what was in her, and fought her way steadily into the gale.

The lofty Santa Ynez Mountains end in Point Conception and Point Arguello, twelve miles north, and we planned to hold our seaward tack until we were able to weather Arguello's overhanging cliffs on the inshore swing. Overhead the day was absolutely clear, and the Dreamer plunged through the welter until we had old Conception abeam, and then the cliffs of the coast beyond, rising hundreds of feet sheer from the water, lifted themselves in an inspiring panorama. Tooth-like Espada Rock bit into the sky first, and then we made out Arguello.

The Dreamer is decidedly stiff, but even close reefed the gale buried her rail, and the piping of the wind in the rigging grew to a scream. The thunder of the shattering seas was awe inspiring, and all together the storm drove terror to the heart of Judy, and he prayed to be returned to his dining car kitchen.

When we were about nine miles westward of Point Conception, we had started preparations for coming about for a reach inshore, believing that with the yacht behaving as she was that we could weather Arguello, when Judy crawled aft, pulled back the companion slide, and asked that we take a snapshot of him in the storm. His face was the color of wet ashes, but he was determined and crawled into the cockpit. Prog was at the wheel, Jack down to leeward ready to set up the port main backstay the instant she filled on the other tack, the Skipper at the weather stay tackle, and I was ready to cast off the jib sheet.

"Ah wants mah pictur took in dis stohm," began Judy, "case—"

"Because you're going to die!" chirped Prog, interrupting as he put the wheel over. "Who'll we send—"

But Prog never finished his teasing sentence. The yacht swung into the wind, but old Conception had a sea watching for it, and it slammed into the starboard bow with a stunning, deafening thunder, and threw the yacht back with a rap full. Just then the real storm hit us like a falling wall. There was a crash like an exploding shell, the yacht shuddered, and two thirds of the mainsail was blown away, leaving a couple of feet next the mast, and about a yard dangling from the gaff.

The Dreamer went to her beam ends, and Judy, standing up and crying: "Lawd! Lawd!" in his consternation, pitched down the deck straight for the bottom of the ocean. Jack caught him, and tumbled him back into the cockpit. When he tried to get up again, Prog, still holding the wheel, kicked him down the companionway, and he lay, moaning and praying on the cabin floor.

Before Prog could ease her, the foresail split from gaff to boom, and the Skipper and I worked to save what was left of the sail, while Prog and Jack were saving the cook. We got the sail down and furled, in spite of the seventy-mile gale—the instruments at the lighthouse recorded it as seventy and better—and wore ship. Old Point Conception had turned us back after all.

Coxo (crippled) Anchorage is a tiny bight, guarded by a reef, lying just east of the point. We had never seen the place, but knew it afforded some shelter in northerly weather. In the young hurricane our engine would be helpless, we knew, so we had no choice but to head the yacht for the hole in the cliffs. The seas crashed against the perpendicular rocks of the coast, and leaped, seemingly one hundred feet, and the air throbbed with their growling. Under the jib alone the Dreamer seemed to have grown wings, and simply flew.

Half way to our looked for haven, while we were securing the main boom, and trying to get the gaff down, a puff that nearly blew us from the deck tore the jib from the bolt ropes. There was a crash, and it was gone. Crawling forward, we set a corner of the staysail, and boiled through the foam,

UNDER PATCHED FORES'L, STAYS'L, AND THE ENGINE, THE LOG REGISTERED NINE KNOTS AN HOUR

THE CHANNEL WAS SMOOTH, THE BREEZE LIGHT BUT FAIR AND OUR GOOD SHIP WAS MAKING FINE TIME IN THE WAKE OF THE SPANISH EXPLORERS

while we got the two hundred and twenty-five pound spare anchor ready, with its five-eighths chain flaked out on deck.

As Point Conception fairly flashed by, we started the engine, for getting through Coxo Reef meant hauling on the wind, and we had no after canvas. The bones of a wreck mark one side of the entrance, and with this abeam we swung in, and headed straight for the cliffs. The big combers swung around the point, and smashed on to the reef, jumping thirty feet into the air, like geysers of crystals. With the lead going, we made the passage safely, and let the big anchor go in five fathoms, just inside the reef.

Were you ever marooned in a hole in the coast with nothing in sight but cliffs of yellow rock, a wild sea in furious combat with a reef, and the haunting ghost of a dead ship? That is what Coxo Anchorage is —but just then we were mighty glad to be there. The reef was almost under our stern, the wreck to port, and the bowsprit pointed straight for one end of the circling shingle of beach. Except for the wreck and the yacht, no handiwork of man was visible, for the cliffs were so high and so close they hid even the lighthouse.

In spite of their height the wind came in a blast off the cliffs, and the yacht strained on the big anchor. A big swell swung around the point and heaved in, the yacht taking it stern first, but the reef and kelp took most of the ginger out of the rollers, and after what we had just experienced the tiny bight seemed almost placid. The proximity of land so improved Judy's spirits that he was able to prepare a belated luncheon, and we took stock of our condition. The jib was absolutely gone, and but a few rags were left of the mainsail above the reef points. The staysail was whole, and we believed we could patch the foresail with the remnants of the main. We had some light sails, but no extra lower sails. We should have had some storm canvas, of course, but we had none. Were we not sailing the drowsy blue Pacific? The ruined suit of sails was nearly new, and losing them was the last thing we would have thought of. It had never happened to any of us before, and we simply hadn't thought of it at all. While Jack and the Skipper began repairs on the ripped foresail, Prog and I got ready to go ashore. We knew that somewhere back of the cliffs the coast line of the Southern Pacific Railroad ran, and that there was a lonely telegraph office, maintained for the train dispatcher's department, near the point.

Prog and I have shot the surf for fun for fifteen years, but that Coxo Anchorage surf was a puzzler. You couldn't tell where the rollers were likely to break, and there seemed to be more rocks around than we needed, but we finally got through. By a steep path we climbed the bluff. Inland the country was lower, stretching away in endless, desolate dunes. To the left was the lighthouse and its attendant buildings, quite a group, for it is an important station.

A short tramp across the dunes brought us to the railroad track, and after counting ties for half an hour we luffed up in front of the lonesome little station. Carey, the agent and general factotum, proved a likable and most accommodating chap, and he was more than astonished to see us. We wanted to notify the insurance company of the loss of our canvas, and to order another suit rushed from the loft which had furnished the lost sails. Carey not only sent our messages, but personally asked the operator in Los Angeles to rush their delivery, and to hurry the answers along. Finding Carey was usually free for several hours in the evening, we asked him to dinner aboard the yacht next day, and departed for the lighthouse.

The view over the ocean from the towering point was something not easily forgotten. The gale was still hitting seventy miles, and under the bright sun the sea flashed a blinding white to the rim of the world, and its rumble and roar seemed to shake the earth. The keepers proved an exceedingly likable crew, and showed us every courtesy, explaining that the yacht was safe where she lay as long as the wind held from the northwest, but that if it should fall, or shift, we would soon find ourselves in the breakers. The cove was too small for an anchorage, they said,—and it was—and that we must not fail to keep an anchor watch, and put to sea on the first sign of a change.

We kept our anchor watch nightly in two hour tricks, while the wind whistled off the cliffs, hit up a mournful tune in the rigging, and snapped the halyards against the masts with the speed and cracking regularity of a rapid fire gun. Saturday, our fifth day from home, broke clear but with the wind still at it. About nine-thirty we went ashore, leaving only Judy on board. After calling on Carey and getting the answers to our messages—the sailmaker, of course, assuring us his loft would work night and day until the new suit of canvas was shipped us—we went to visit the people of the lighthouse. Aside from the men, we met the wife of one of the assistant keepers, her children and the dog. She was an attractive and very good natured woman, and seemed not in the least bored by the loneliness of her surroundings. The Skipper grew curious, and asked her what she found to do with her time in such a place, if she went in for gardening, or chicken raising.

"No," she laughed, "we don't raise anything around here except hell and kids!"

The gale held steady, and we were mighty glad to get back aboard, and go below out of the wind. No vessels had passed the point since our arrival, but shortly after noon a big barkentine came down the coast, running before it under her foretops'ls and going like time. Late in the afternoon Carey appeared on the beach to tell us he had to wait for a delayed train, and couldn't join us that evening. After promising to come the next night, he disappeared over the rim of our world. During dinner we heard the whistle of the train, and a yearning light came into Judy's eyes as he served us.

"Dere goes numbah six!" he mourned. "Gosh! I wishes I wuz rattlin' de pans in dat dinah now!"

Sunday was bright and clear, but the wind showed no intention of abating. Prog's leave was up, and he had to go home, so I took him ashore and went to see him off. On the beach we were hailed by two Portuguese fishermen of the better class, who introduced themselves as brothers by the name of Muchado. They said they had attempted to round Point Conception early the previous morning in their fifty-foot power fishing boat, but that a boarding sea had ripped the top off the pilot house, nearly drowning the helmsman, and that they had put into Little Coxo, a tiny cove a mile down the coast. After inviting them to take the skiff and go aboard the yacht, Prog and I climbed the cliff, and tramped to the station. The meeting with the Muchados later proved very fortunate for us. They were crude, rough chaps, of course, but mighty decent.

On the way back from the station I met the first assistant light keeper, who told me his niece had arrived for a visit, and that he would like to bring her aboard the yacht. I did the proper urging, of course, and when the Muchados saw me on the beach they came ashore, and I went aboard to report. I didn't know when the lady was coming, but the way those swabs began reefing their whiskers was something to marvel at. And even Judy shaved every day after that!

Two of the assistant keepers came aboard for the afternoon, and Carey was on the beach when we took them ashore. It would be hard to imagine a lonelier station than Carey's, and he was a little shy at first, and seemed ill at ease amid his surroundings of mahogany, mirrors and glassware, but he was a mighty decent chap, and we all enjoyed his visit.

There was nothing to do Monday but wait for the wind to let up. The Muchados, still marooned, showed up and skilfully put the finishing touches on our sail repairing job. Two steam schooners passed the point, going down the wind. Each had a square sail set on her stubby foremast, and they seemed to be making about twenty knots. In the afternoon I went ashore to do the honors by calling on the assistant keeper's niece. She proved a lively girl, and decidedly restful to the eyes of a marooned sailor man, but she was afraid of the trip through the surf. In order to liven up her stay, and ours, the people of the lighthouse were planning a mussel bake for the next afternoon, and I accepted for the crew. Along about dark I moseyed back aboard, and we played roulette until midnight.

Tuesday morning the wind had queer holes in it, and we began to worry, especially as a heavy sea heaved into the little bight and thundered on the shingle. The Skipper and Jack refused to go ashore, but someone

(*Continued on page 100*)

WHEN UNDERWAY THE 36-FT. DAY CRUISER OWNED BY MR. STUART WYETH TRAVELS CLEANLY AND LEAVES BUT LITTLE WAKE

How a Sail Should Set

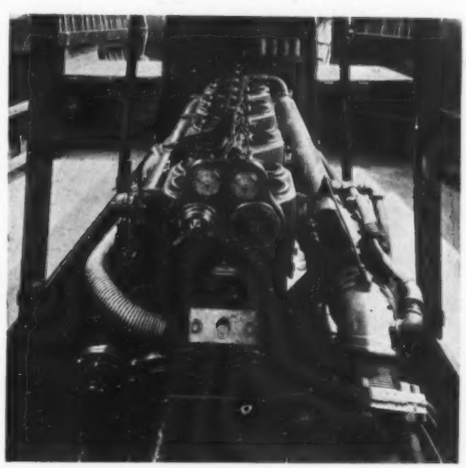
Aeronautics is now teaching many what the proper curve is that the planes of a flying machine, the face of air propellers and the curve that a boat's sail should have to give the best reaction and forward push from the wind's pressure. Unlike the propeller of a motor boat, that has one speed at which it develops its maximum efficiency, a boat's sail is more on the principle of a reversible propeller where the pitch can be increased or diminished to suit the speed of the wind.

Too many people think that a sail, when once set, needs no attention other than that of pulling in or letting out the sheets; but in that they are sadly in error. Every change in the wind's velocity requires a corresponding shift in the sail—sweating up to flatten the sail in a hard blow on the wind or slacking down to make the sail more baggy in light airs. Some people have an idea that a tin sail would be the ideal driving surface, but nothing could be farther from the truth, and often a new, springy, live sail will make a winner of a boat that has been a persistent loser with an old sail from which all the resiliency has been stretched out.

Have you ever seen an aeroplane and noticed the fore-and-aft curve of its planes? Well, you most likely saw that the curve was greatest at the entering end and ran nearly flat from the middle to the back. That, in general is the curve we are talking about, and shows that a sail made with one curve, or the arc of a circle in its surface, is wrong. The correct shape, properly described, is a parabolic curve, or a curve running from the mast in a parabola, gradually flattening into almost a straight line near the leach. This may sound complicated, but it is much simpler than a description of some curves seen in neglected and misused sails.

A Unique Day Cruiser

Mr. Stuart Wyeth, of Philadelphia, has at different times owned a varied assortment of boats, some of them fast, some of them large, some of them small, but all of them have been unique in many respects. His latest boat is a day cruiser designed by the Luders Marine Construction Co., of Stamford, Conn. She is 36 feet long, 8 feet wide, and draws 2 feet 6 inches of water, and was



THE POWER PLANT OF MR. WYETH'S DAY CRUISER IS A VAN BLERCK MOTOR

designed especially as a ferry between his summer home on Long Island Sound and New York City.

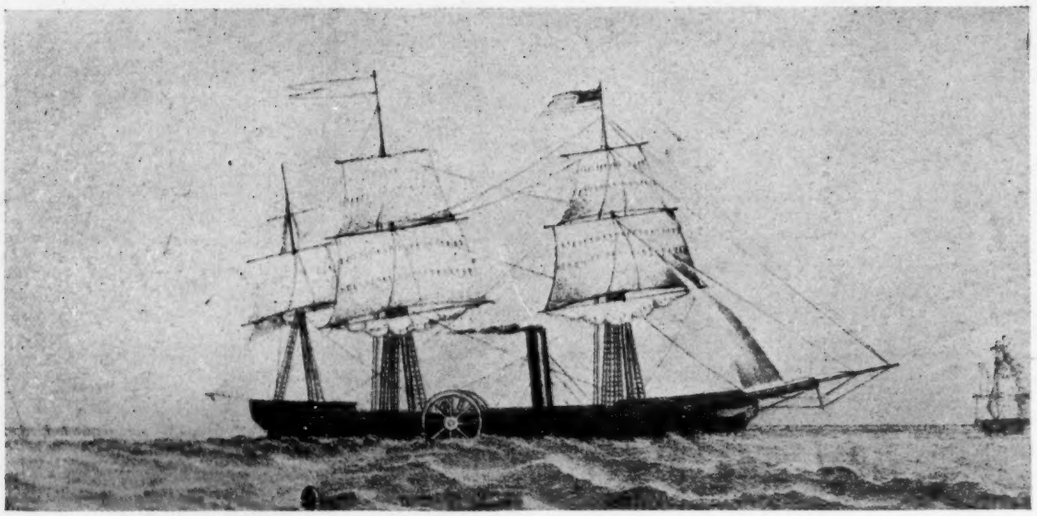
One of the requisites of a boat of this type is that she must have lots of speed and this one has it. Her power plant consists of an 8-cylinder 5½-inch by 6-inch 175 horse power Van Blerck motor, and her speed with this is 31½ miles per hour. The motor is located amidships under a small deck house having port lights and conveniently arranged openings, so giving access for adjustments and cleaning.

The helmsman's cockpit is forward and is amply protected against flying spray and bad weather by a folding hood. A small shelter affords protection to the after cockpit, its after end being left open, thus creating a comfortable and well lighted compartment where one may find shelter in the worst kind of weather yet enjoy the pleasure of being afloat that is afforded better by the small fast boat than by any other type of craft.

Selecting a Tender

Some of you may wonder whether it is best to purchase a lapstreak or carvel-built boat. In the lapstreak tender, the planks lap over each other—that is to say, the lower edge of one plank laps over the upper edge of the plank below—and the carvel-built boat is planked smooth. If you intend to carry your tender on davits, or it is to be kept hauled out on a dock or float for days at a stretch, the lapstreak tender is more desirable, as it is less apt to leak, and, for another thing, it can be built of much lighter material. The carvel-built boat, if kept in the sun or where it is dry, will leak, as the shrinking of the wood opens the seams, and if you have a boat of this build hauled out, keep a little water in it to prevent it drying up. Some of the small round bottom tenders are built light and covered with canvas. This makes them practically proof against leaks, unless holes are cut in the canvas, which will not happen if they are given proper care.

These small tenders are easy to row, but as they are many times called upon to make long trips ashore for the owner or supplies, what thought could be a happier one than that they be fitted with power? And what better power can be installed than an outboard motor?



THE SAVANNAH WAS A TYPICAL SAILING CRAFT OF HER DAY BUT HAD STEAM ENGINES INSTALLED AS AUXILIARY POWER

Out of the Mist of Yesterday

Looking Backward to the First Days of the Deep Water Steamship

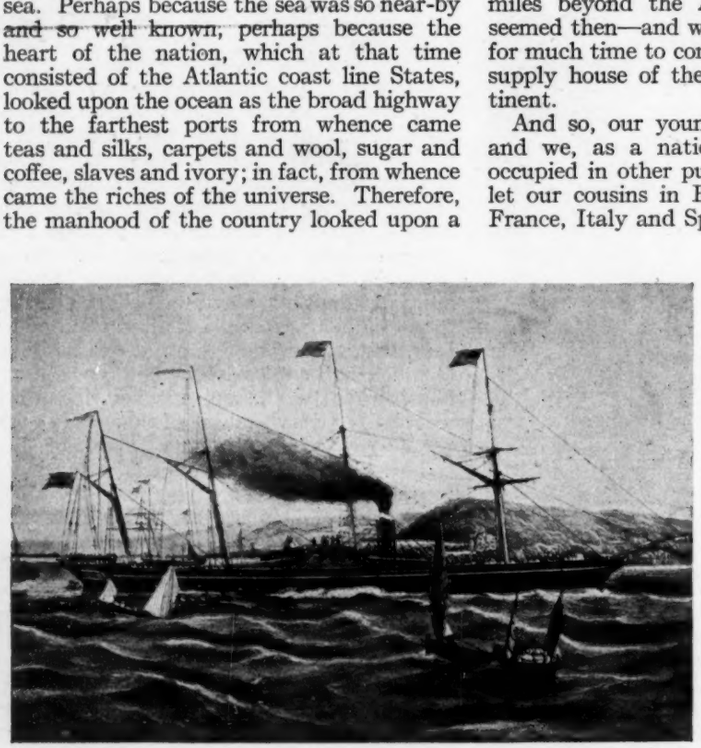
By CYRUS WILSON

THE sailing ships of a bygone day are held in especial reverence by Americans for it was in the later days of the sailing packets that the merchant marine of the United States was supreme and American ship owners, ship builders, ships and seamen were equal to any task set before them.

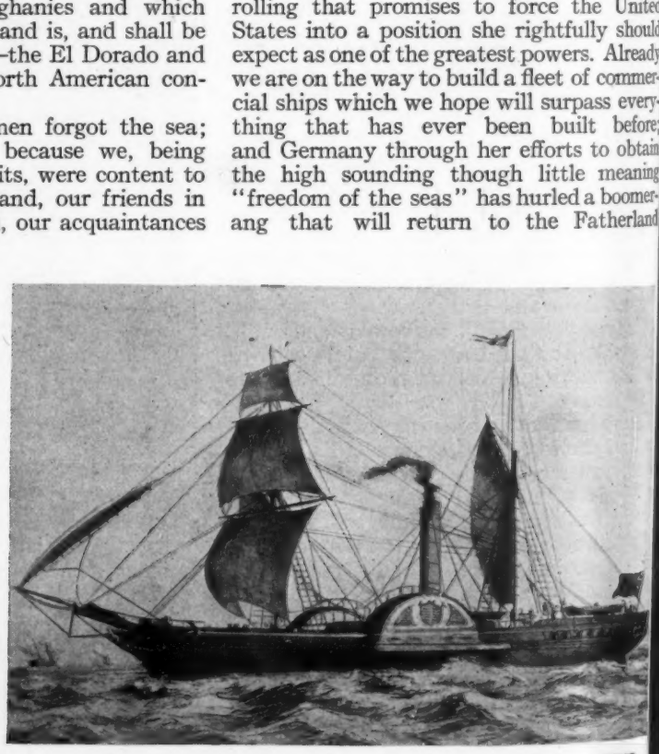
In those days the possibilities of gaining wealth loomed large through following the sea. Perhaps because the sea was so near-by and so well known, perhaps because the heart of the nation, which at that time consisted of the Atlantic coast line States, looked upon the ocean as the broad highway to the farthest ports from whence came teas and silks, carpets and wool, sugar and coffee, slaves and ivory; in fact, from whence came the riches of the universe. Therefore, the manhood of the country looked upon a career at sea as a pre-eminent occupation that, if seriously begun and diligently continued, brought wealth, adventure and fame. We seemed in those days a people destined for a race of seafarers and right well should have been but for the discovery of gold in California, the bloody quarrel with our brothers of the Confederacy, and the rapid opening of the plains, valleys and hillsides of the Golden West, that stretched for miles and miles beyond the Alleghanies and which seemed then—and was, and is, and shall be for much time to come—the El Dorado and supply house of the North American continent.

And so, our young men forgot the sea; and we, as a nation, because we, being occupied in other pursuits, were content to let our cousins in England, our friends in France, Italy and Spain, our acquaintances the Scandinavians, Dutch and Danes, and our terrific enemies, the Germans, carry the products we produced in ships of theirs. Our merchant fleet dwindled; theirs grew because they, who had no Golden West as a near-by neighbor to develop, found adequate profit in freighting the goods of the Yankees.

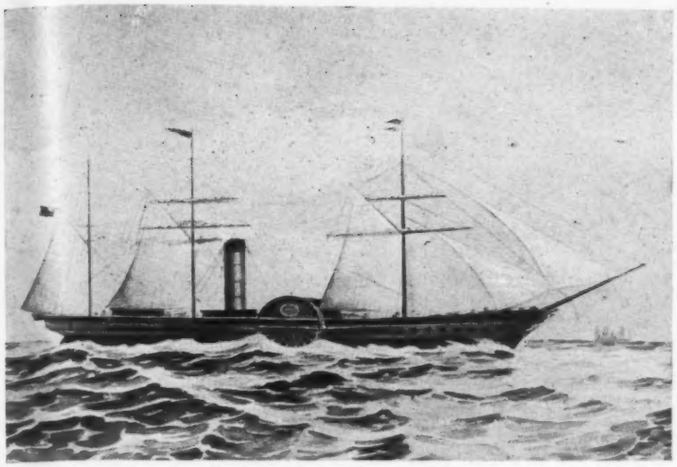
When Germany started her submarine raids against shipping she started the ball rolling that promises to force the United States into a position she rightfully should expect as one of the greatest powers. Already we are on the way to build a fleet of commercial ships which we hope will surpass everything that has ever been built before; and Germany through her efforts to obtain the high sounding though little meaning "freedom of the seas" has hurled a boomerang that will return to the Fatherland



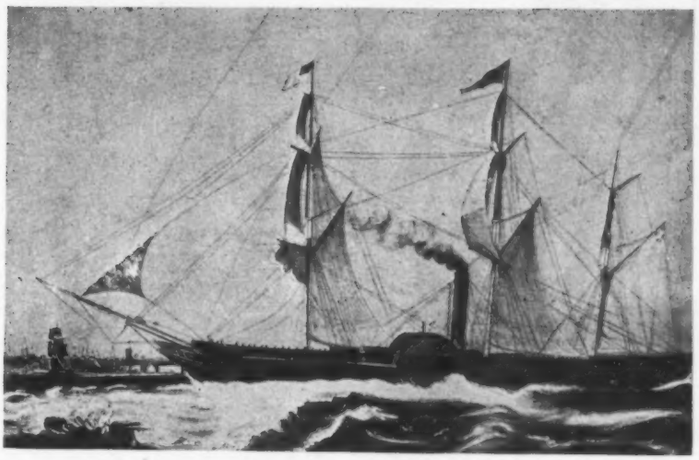
THE GREAT WESTERN MISSED BY BUT A FEW HOURS THE HONOR OF HAVING BEEN THE FIRST STEAMER TO PLY BETWEEN ENGLAND AND AMERICA



THE SIRIUS, CAPTAINED BY LIEUT. ROBERTS, R. N., MADE THE FIRST ALL-STEAM TRANSATLANTIC PASSAGE



BRITANNIA HAS BEEN A FAVORITE NAME WITH THE CUNARD LINE. THEIR FIRST VESSEL OF THIS NAME WAS LAUNCHED IN 1840



THE PADDLE WHEEL STEAMSHIP BRITISH QUEEN, WAS IN HER TIME, 1839, THE LARGEST AND FASTEST STEAM VESSEL AFLOAT

quite empty of the results she hoped to attain, and smattered with the distrust and enmity of less "kultured" peoples of the world, for Americans have a habit of doing things quickly and thoroughly when they are once aroused, and so we look to our merchant marine to come back to its own, back to the seven seas, and especially to the heaving Atlantic.

All men should thank the power of steam for the height we have so far reached on the ladder of civilization. Without steam we should still all be a primitive people. Steam has made it easy to reach the farthest parts of the world. It has brought men together, to know one another, which in bringing a better understanding between them, has made the world a better place to live on.

The steam engine and boiler at first were crude affairs, little understood, and Watt, Vail, Dod, Fulton, Rogers and those pioneers who were able to comprehend their advantages had an uphill struggle to convince anyone in their day of the practicability of making steam the servant of man.

Although steam engines had been installed in a number of boats even as early as 1773 and more or less experimentation had been carried on in that time it was not until the year 1819 that a vessel fitted with steam power attempted a long ocean voyage. This craft was the Savannah, a sailing vessel using an auxiliary steam engine. She crossed the Atlantic from West to East, but, as she sailed most of the way, using her engines only on entering or leaving port, it is hardly fair to describe her as having been the first steam vessel to cross from America to Europe. The Savannah was a full rigged ship of 350 tons, 130 feet long, with a beam of 26 feet and a depth of 16½ feet. Her boilers carried only two pounds of steam on her trial trip although the estimated pressure was ten pounds. She was fitted with paddle wheels, which were built so as to be easily unshipped in the event of bad weather. The time of the voyage between Savannah and Liverpool was 29 days and 11 hours although during the voyage her engines were run for but a total of eighty hours. The voyage was of great interest as it proved the possibility of using steam successfully as an auxiliary to sails.

After having returned to New York in December, 1819, her machinery was removed and the Savannah completed her usefulness as a sailer between New York and other ports for a number of years until in 1822 she was wrecked on the shores of Long Island.

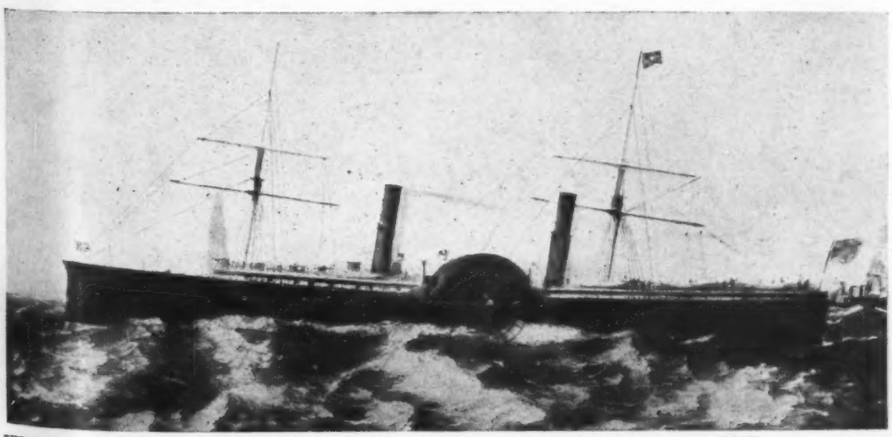
Several other experimental steam powered vessels were sent across the Atlantic between 1820 and 1838, but these were dependent more upon their sails for propulsion than upon their machinery and so can hardly be recognized as true steamships.

In 1836 a transatlantic steamship company, bearing the title of the British Queen Navigation Company, was formed and its steamer, Sirius, steamed out of London for New York in 1838; her commander, Lieut. Roberts, R. N., was thus the first man to have navigated a steamship from Europe to America, and his ship was 178 feet long by 25 feet 6 inches breadth of beam, 18 feet 6 inches deep and of 703 tons burden. She was propelled by paddles and her engines, like those of practically all other steam vessels of her time, were of the side lever type.

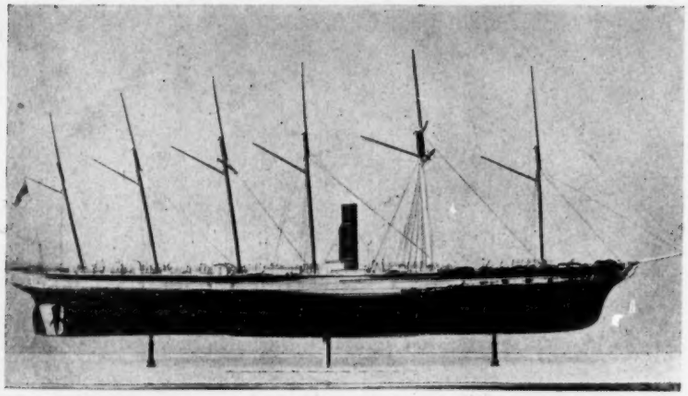
The Sirius left London on March 28, 1836, without freight as she was sailing as a passenger steamer only. On her voyage down the Thames she overtook the Great Western, owned by the Great Western Company, which had a number of guests aboard and a trial of speed was the consequence. The Sirius was the faster of the two craft and before she had reached Gravesend she was upwards of a mile ahead of her rival. The sailing ship, Quebec, of the American Line, towed down the Thames soon after the departure of the Sirius from Liverpool and many wagers were laid that the Quebec would arrive at New York before the steam boat. Those who backed the sailer, however, lost their money.

On the morning of the 4th of April the Sirius left Liverpool and started bravely across the western ocean, and New York was reached in the evening of April 22nd, the craft having behaved well on her venturesome voyage although Lieut. Roberts, her commander, had considerable trouble with her crew and had to persuade them through the use of loaded firearms that his ship was able enough to make the passage in safety. There were 94 passengers on board, 30 in the first cabin, 29 in the second, and 35 in the steerage. Her average speed was 8½ knots per hour and about 25 tons of coal were burned per day.

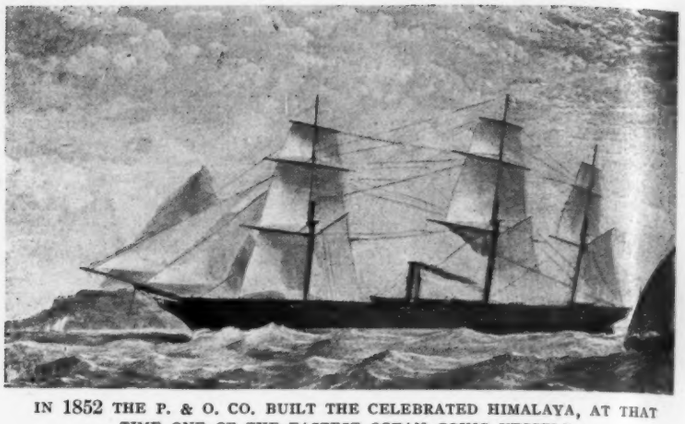
A few hours after the Sirius had anchored off the Battery a second steamship was



THE LAST AND FINEST STEAMER OF THE COLLINS LINE WAS THE ADRIATIC, BUILT IN 1857. THE OWNERS OF THE COLLINS LINE WERE THE FIRST TO BUILD STEAMERS WITH PLUMB BOWS AND ROUNDED STERNS.



THE GREAT BRITAIN WAS THE FIRST IRON SCREW PROPELLED VESSEL TO MAKE A LONG OCEAN VOYAGE



IN 1852 THE P. & O. CO. BUILT THE CELEBRATED HIMALAYA, AT THAT TIME ONE OF THE FASTEST OCEAN GOING VESSELS

sighted making its way up the harbor and there was intense excitement when it was learned that this vessel was the Great Western, which had left for New York three days after the departure of the Sirius. Her average speed was 8.2 knots an hour and she burned 452 tons of coal. During the time that the Sirius and the Great Western had the attention of the public a company was formed to join in the trans-atlantic traffic called the British & American Navigation Co. This concern started the Atlantic service with the paddle steamer Royal William. She was a faster vessel than any of the steamers so far built, and, although somewhat shorter in length than the Sirius, her capacity was greater. She had accommodations for carrying passengers only and carried no cargo as all the hold space was needed for fuel. The Liverpool, a similar ship, ran alternate trips with the Royal William between Liverpool and New York until the British Queen, a new steamer belonging to the British Queen Navigation Co., made her first voyage to New York in July, 1839. She was at that time the largest and fastest steam vessel afloat.

The paddle steamer President was the first steam vessel to meet with disaster in the Atlantic service. She sailed for New York on March 12, 1841, and no trace of her has been found from that day to this.

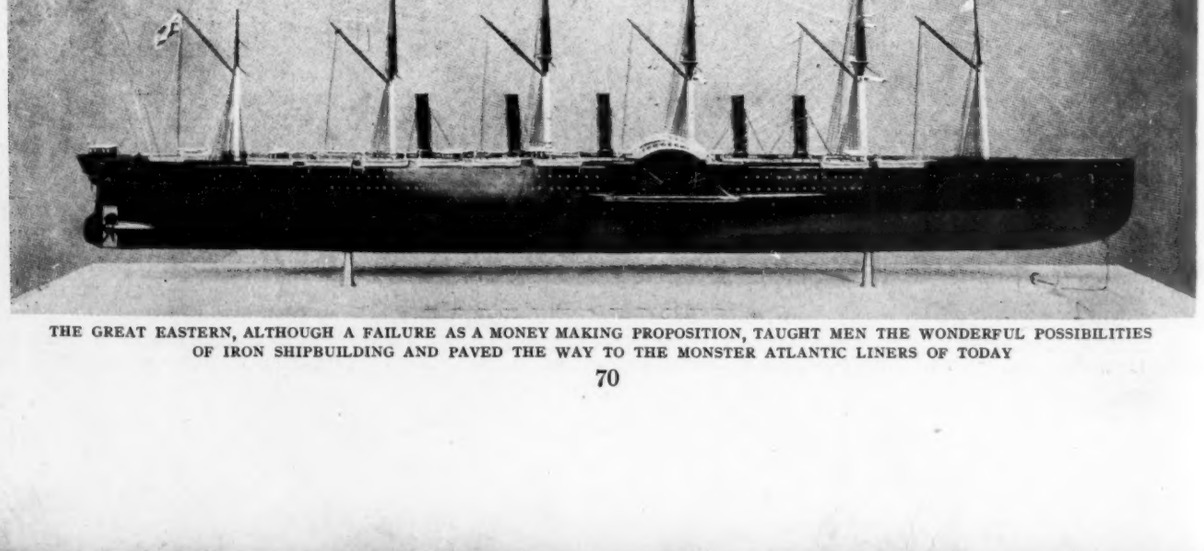
These craft were all square sterned vessels, entirely built of wood with oak frames and fir planking and decks. They were bark rigged and their paddle boxes placed almost amidships with the funnel, which was usually tall, placed somewhat abaft the wheels. All of these vessels had machinery of a similar type and represent well the Atlantic liners of that early day.

The manifest superiority of steam vessels induced the British Government in October, 1838, to look to vessels of this kind to carry the mails instead of the brigs which were until that time thought good enough for this service. One Samuel Cunard, a merchant of Halifax, Nova Scotia, who had for many years believed that the steam vessel was destined to play an important role in the commerce of the world, made every effort to convince his fellow townsmen of its value and tried in every way to induce them to supply capital for building a number of craft for this very purpose but without avail. Going abroad he met with as little sympathy and, but for a fortunate meeting with Mr. Robert Napier at that time famous as a shipbuilder on the Clyde, he would never have had the opportunity to fulfil his dream. It was not long after this that £270,000 was raised among the well-known shipping men and merchants of England and backed up by some of the influential shipbuilders and merchants of the Clyde, Cunard tendered a bid for the carrying of the mails once every two weeks between Liverpool, Halifax and Boston and his tender was accepted. Because the conditions were exacting the government allowed £81,000 subsidy a year. And so the Cunard Line was formed. In its early days it was known as the British and North American Royal Mail Steam Packet Company, and the vessels built for this service were the Britannia, the Arcadia, the Caledonia, and the Columbia. These were side wheel steamers in the neighborhood of 207 feet by 34 feet wide with a molded depth of 24 feet. The tonnage was about 1,100 tons and horsepower in the neighborhood of 740. These craft were equal to a speed of about 8½ knots an hour. The first steamer crossed the Atlantic for Halifax on May 16, 1840.

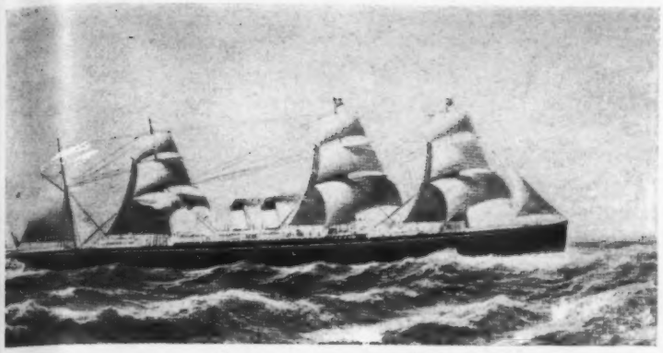
New ships were built for the line from year to year and in 1852 the Arabia was built. She was 285 feet long and her tonnage was 2,402 tons while her engines developed 32–50 horsepower and drove her at an average speed of 13 knots. The launching of the Arabia closes the first period of the history of the Cunard Line. After that time the company began to build iron ships in place of the wooden ones.

American shipping men seemed very little interested in the transatlantic steamship trade, they probably being satisfied with the performance of their sailing ships and they had good reason to be.

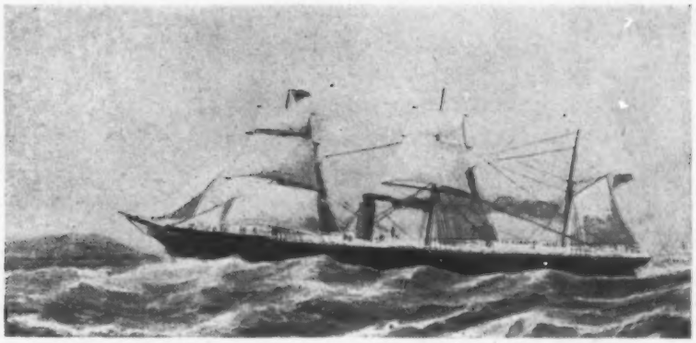
The United States Congress passed an act in 1845 authorizing contracts for carry-



THE GREAT EASTERN, ALTHOUGH A FAILURE AS A MONEY MAKING PROPOSITION, TAUGHT MEN THE WONDERFUL POSSIBILITIES OF IRON SHIPBUILDING AND PAVED THE WAY TO THE MONSTER ATLANTIC LINERS OF TODAY



THE WHITE STAR LINE BROUGHT OUT THE BRITANNIC IN 1874. SHE WAS THE FAVORITE SHIP OF TRANSATLANTIC VOYAGERS FOR A NUMBER OF YEARS



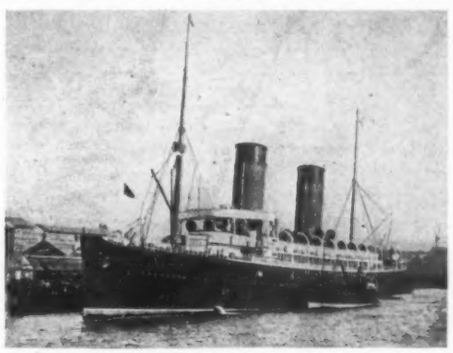
THE CUNARDER RUSSIA, BUILT IN 1867, IS TYPICAL OF THE BRITISH PASSENGER SHIP OF THAT DAY

ing mails with the owners of American vessels, preferably steam vessels, and in 1847 the Ocean Steam Navigation Company, an American concern, made a determined effort to maintain the service between New York and Bremen with stops at two Channel ports. The Line received a subsidy of $200,000 from Congress and for a little over a year it operated two wooden paddle steamers, the Washington and the Herman, and then ceased operations.

Other efforts were made to keep American steamships in the trans-atlantic trade but somehow they met with little success and it was not until the Collins Line was organized, in 1847, that there seemed any real promise of the regular service being kept up by American steamships. This line carried the United States mail, for which it received $385,000 a year, but because the first ships were much swifter and more expensive and, therefore, more valuable to the nation, the government in 1852 increased the payment for carrying the mails to $858,000 a year. The five ships of the Collins Line were the Atlantic, Pacific, Arctic, Baltic and Antarctic. The Atlantic and the Arctic were the largest steamships so far built, and it is interesting to note that they were the first ships ever to have been heated by steam. Practically all British steamers at that time were built with clipper bows and square sterns, but the American vessels were built with plumb bow and a round stern and were the first vessels of this design to appear. Also, these boats were built with flat floors with a fine entrance and run, and although this at that time seemed to most boat builders and naval architects a mistake, events have proved that it was a step in the right direction.

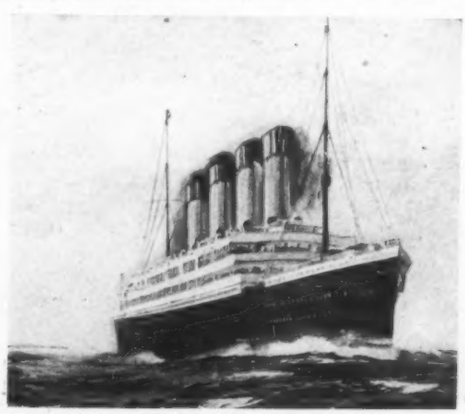
For a time it seemed as if the Collins Line had gained the premier position in the Atlantic trade. Its ships were the fastest afloat and the most luxurious. Although its income was great, it was wastefully managed and its steamers were expensive to maintain and it never paid a dividend, and through the loss of two of its finest ships, the Arctic and the Pacific, and the cancellation by the government of its mail contract, the line ceased operations.

A second unfortunate enterprize was the establishing of a steamship line to run between Galway, Ireland, and Halifax, Nova Scotia. A number of the merchants of the day seemed to think that by running a fast line of steamers between these two ports, which have less of the bold Atlantic between them than any other two cities on the two continents, much time could be saved, of course using the railroads between Halifax and New York and the regular transportation lines to Ireland from England; the inconvenience of the disembarking the passengers and mails from the railway to the steamship at both ends



ONE OF THE FINEST STEAMSHIPS EVER BUILT WAS THE CAMPANIA BUILT BY THE CUNARD LINE IN 1892

of the voyage was so great that the time saved in the passage was hardly sufficient to warrant the slightly quickened service. The Galway Line ran for a little over a year during which time it had a series of misfortunes that constitute a record and finally liquidated, the result being a heavy loss to everyone who had anything to do with it.



THE GIANT SHIP OLYMPIC WAS LAUNCHED BY THE WHITE STAR LINE IN 1910. SHE WAS RECENTLY SUNK IN THE MEDITERRANEAN BY A GERMAN TORPEDO

Although this article bears more directly on the steamship development of the North Atlantic, do not for a moment think that the wheels of progress were standing still in other channels of trade. Through the Mediterranean and the Far East, on the Pacific, and through the Trades to South America the steamship was coming into its own and the development of steam plants and steamship construction was remarkable.

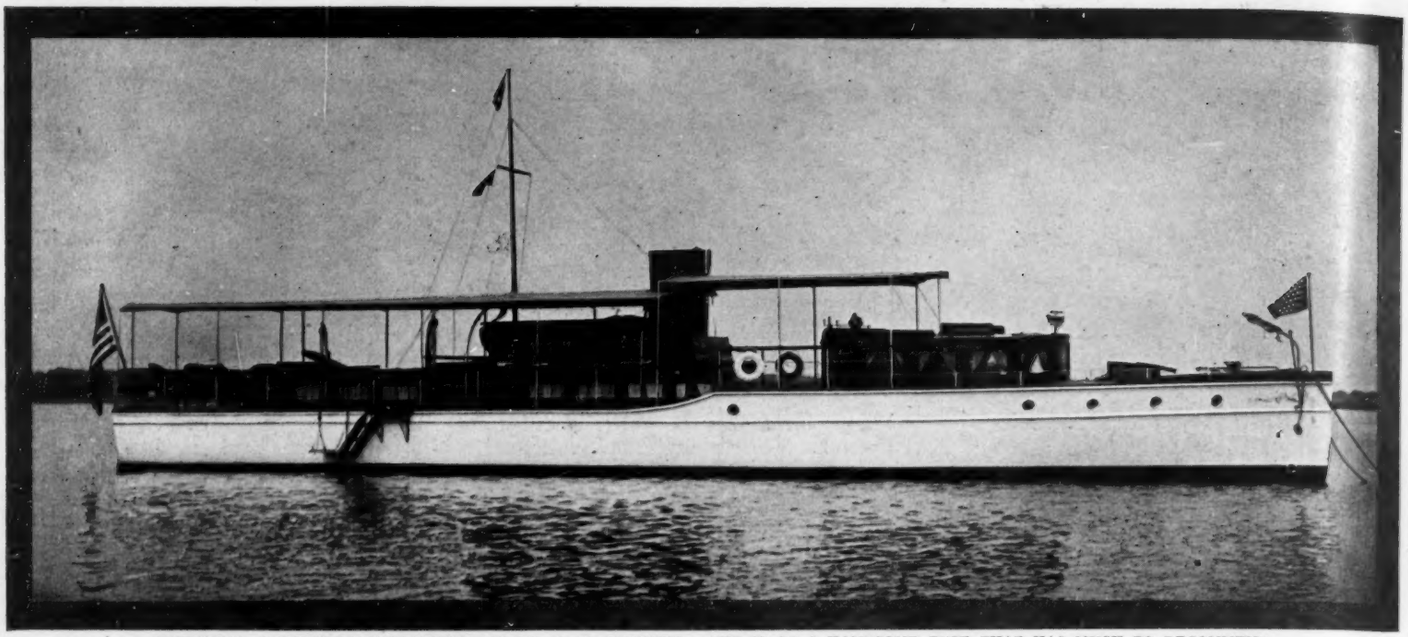
During the early development wood was used almost entirely for construction but in the middle of the 19th century iron began to take its place and the screw propeller to supersede the paddle wheel. The adoption of these marked a new era in the history of steamship building.

By using iron there was no limit as to the length ships might be built. With wooden vessels if the vessel was more than 260 to 280 feet in length there was great difficulty in building it stiff enough and strong enough to withstand the heavy Atlantic weather. But by using iron, as proved by the Great Eastern, built in 1858, there is no limit excepting the problem of dockage, to the length a ship might be built if properly designed and constructed.

One of the great difficulties in developing the screw steamship was the matter of steering. It was a long while before the designers learned that by the early method of placing the screw in an aperture in the dead wood, at the same time retaining the full under body aft, that the craft would be indifferent to the movement of its rudder; nor could the full power of the screw be exerted. All sorts of systems were tried, even the fitting of two rudders, but without avail. After a number of years the difficulty was solved by placing the sternpost farther aft, so giving a larger space in the deadwood within which the propeller might revolve. Also, the lines of the vessels were sharpened aft which tended to reduce the slack water under the counter.

It seems a strange coincidence that the first screw steamer to make a long ocean voyage was owned by the Great Western Steamship Company, owners of the Great Western, and that one of their ships, the Great Britain, built of iron and driven by a screw propeller, holds the honor of having been the first large screw steamer to cross the Atlantic. The hull of this vessel was unique in so many respects that wise-

(*Continued on page 93*)



JOSEPHINE, A STURDY CRAFT OWNED BY MR. A. H. BROMELL. SHE IS OF A HANDSOME TYPE THAT HAS MUCH TO RECOMMEND IT TO THE MAN WHO IS IN SEARCH OF AN ALL AROUND CRUISER

An Able 75-footer

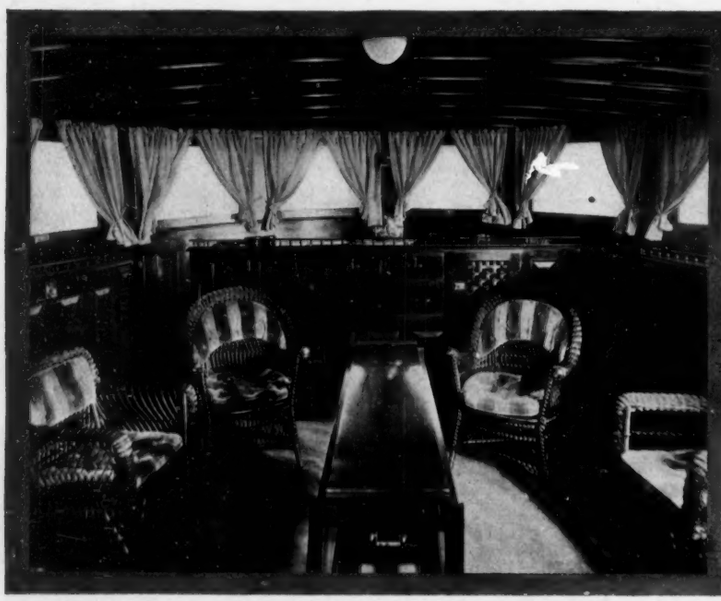
AMONG the new craft built this season is Josephine, a sturdy motor yacht 75 ft. long by 16 ft. wide and of 3 ft. 6 in. draft. She is from the yard of the N. Y. Yacht, Launch & Engine Co., Morris Hts. Upon the raised deck forward there is a well lighted mahogany deck house that serves both as main cabin and dining room. It is finished in panelled mahogany and comfortably furnished with a folding table, built-in buffet, and upholstered reed chairs. There are roomy quarters for the crew forward, access to which is had through a hatchway in the forward deck.

The motor room is about amidships and is fitted with two 6-cylinder 65–75 horse power Twentieth Century motors which propel the boat at a speed of about 14 miles an hour. The craft has sufficient gasolene capacity to give it the ability to make a long cruise without numerous stops for gasolene.

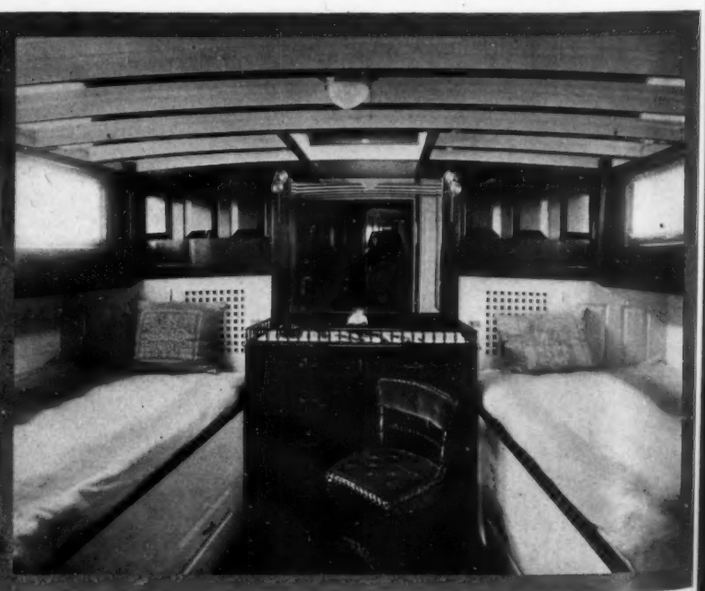
There is an independent electric lighting outfit that supplies current for lighting the entire craft; the exhaust from this and also from the main motors are carried upward through the stack.

The owner's quarters are abaft the engine room and include two single staterooms, each amply fitted with berths, drawers and plenty of locker room. There is also a double stateroom aft having a wide built-in berth each side, a real bureau and such other furniture as is necessary for the owner's comfort. There is an adjoining bathroom and a lobby adjacent to the double stateroom. All of the after cabins are finished in mahogany and white enamel which gives these apartments the cheery, boaty look not always found aboard craft of this size.

The hull is strongly built, the frame being of oak with yellow pine planking, the fastenings throughout being of copper. The exterior joiner work is of mahogany and the decking of white pine. The craft carries a motor launch and a dinghy.



THERE IS PLENTY OF ROOM IN THE MAIN CABIN WHICH ALSO SERVES AS A DINING SALOON



A BIG DOUBLE STATEROOM IS LOCATED AFT AND IS FINISHED IN WHITE AND MAHOGANY

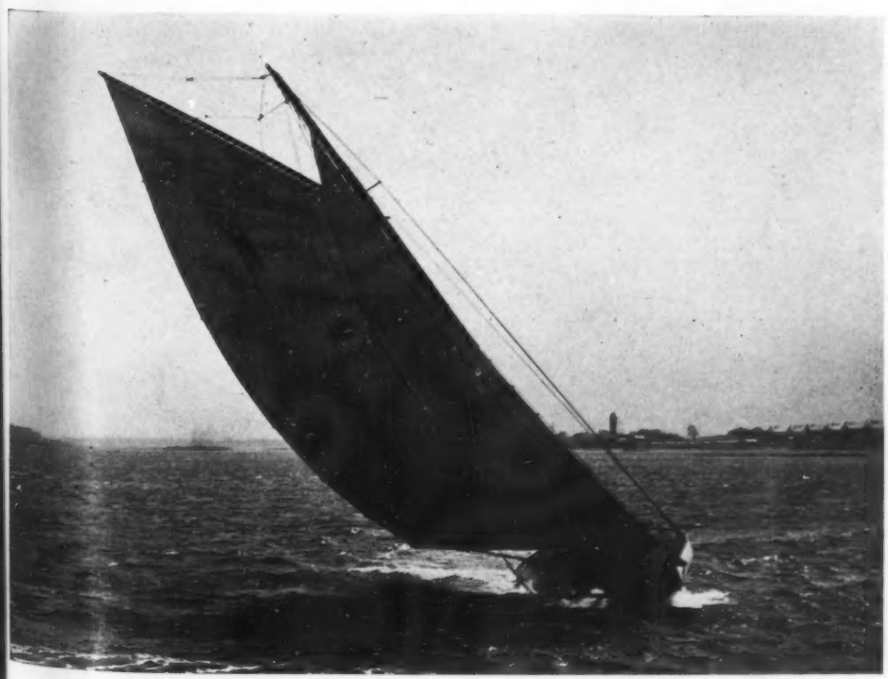
THERE WAS KEEN SPORT FOR THE SAILORMAN AT THE NEW ROCHELLE YACHT CLUB'S OPEN REGATTA

The New Rochelle Yacht Club's Regatta

ALTHOUGH the largest yacht that raced in the New Rochelle Yacht Club Regatta, on June 30th, would have been considered small in less critical times, the whole spirit of the affair was just as it should have been, and the success of the regatta will go a long way toward influencing some of the other yachting organizations to reconsider their earlier plans of abandoning open races during war times.

There were 36 starters divided into nine classes and throughout the contest these little craft held many spirited brushes. A whole sail breeze was piping out of the west when the committee boat, Athena, owned by Mr. Augustus Barrett, carrying the regatta committee, consisting of E. H. Tucker, chairman; O. H. Chellborg, W. H. J. Ehler, and Chas. H. Tower arrived at the starting line off the mouth of Echo Bay. The placing of the course signals made it plain that these men had made an excellent decision in the placing of the turning buoys.

The "Q" Class was the first division to get away and the Virginia, formerly owned by Com. J. Stuart Blackton, and Arvia, two old Gravesend Bay rivals, with the Skid got away to pretty start; sheets free and booms off to port. The two first mentioned craft, as usual, had a great race and for the whole distance the contest between these two boats was keen. However, Virginia gradually drew away from Arvia which was leading at the weather mark, and on the run home gradually increased her lead until she passed the committee boat winning by a margin of two minutes and 23 seconds. In the other classes the racing was of the same character as that between the Class "Q" sloops.



A GLORIOUS FULL SAIL BREEZE CAME WHIPPING IN FROM THE WEST

The Summaries

SLOOPS—CLASS Q—START 2:25—COURSE 10 MILES

Yacht and Owner	Finish H. M. S.	Elapsed Time H. M. S.
Virginia, R. B. Budd	4 29 46	2 04 46
Arvia, T. S. Clarke	4 32 09	2 07 09
Skid, H. L. Curry	Did not finish	

YAWL CLASS—START 2:30—COURSE 5 MILES

Windward, F. Gade	3 30 57	1 00 57
Guardia, C. A. Marsland	3 40 28	1 10 28
Bonita, S. G. Ellis	Did not finish	
Playmate, F. B. Draper	Withdrew	

Corrected time on Windward, 1:00:57; Guardia, 1:01:20.

HANDICAP CLASS—FIRST DIVISION—START 2:35—COURSE 7¾ MILES

Anita, G. P. Granbery	3 46 25	1 11 25
Wasaka, W. L. Coursen	3 52 59	1 17 59
Pontiac, H. Carson	3 50 15	1 15 15
Carolina, A. W. Lockwood	3 56 25	1 21 25

Corrected time on Anita, 1:11:25; Wasaka, 1:14:01; Pontiac, 1:14:32.

HANDICAP CLASS—SECOND DIVISION—START 2:35—COURSE 7¾ MILES

Veda, G. Chadwick	3 55 50	1 20 50
Sally IX., A. E. Black	Did not finish	
Nadia, W. F. Clark	Did not finish	
Ariel, T. Price	3 58 51	1 23 51
Clare, P. C. Pfeiffer	4 04 43	1 29 43
Elinore, F. W. Howard	3 59 20	1 24 20

Corrected times—Veda, 1:20:02; Ariel, 1:20:13; Elinore, 1:20:18; Clare, 1:26:42.

LARCHMONT INTERCLUB CLASS—START 2:40—COURSE 7¾ MILES

E'Bar, C. Valentine	4 06 20	1 26 20
Barbara, C. Shields	4 08 10	1 28 10
Sirene, R. W. Fraser	4 09 49	1 29 49

HANDICAP CLASS—THIRD AND FOURTH DIVISION—START 2:45—COURSE 7¾ MILES

Robin Hood III., G E. Gartland	4 07 59	1 22 59
Orienta, G. W. Lawson	4 36 52	1 51 52

Corrected time—Robin Hood III., 1:22:34; Orienta, 1:35:16.

SONDER CLASS—START 2:50—COURSE 7¾ MILES

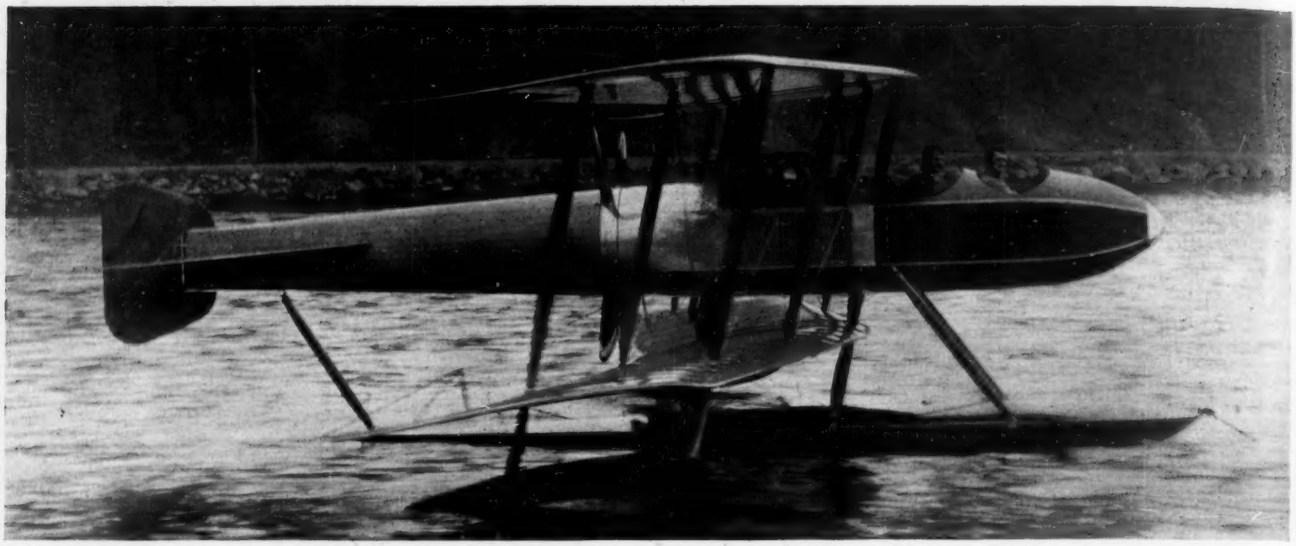
Feather, A. G. Clark	4 15 17	1 25 17
Tern, W. S. Silkworth	4 15 20	1 25 20
Helen, W. T. Hornidge	4 20 51	1 30 51
Eleanor, C. E. Russell	4 21 36	1 31 36
Mingo, H. T. Hornidge	Did not finish	

STAR CLASS—START 3:00—COURSE 5 MILES

Altair, E. V. Willis	4 44 32	1 44 32
Hydra, C. E. Hyde	4 46 19	1 46 19
Little Bear, Allan Walker	4 47 32	1 47 32
Little Dipper, G. A. Corry	4 47 50	1 47 50
Zete, G. W. Elder	4 48 59	1 48 59
Geminii, S. C. Pirie	4 54 16	1 54 16

NEW ROCHELLE ONE DESIGN—START 3:05—COURSE 5 MILES

Virginia, A. R. Bastine	5 14 07	2 09 07
Nereid, D. Giriat	5 14 50	2 11 06



THE GALLADUDET HYDRO-AEROPLANE IS AN INTERESTING TYPE. A DUESENBERG AERONAUTICAL MOTOR REVOLVES A FOUR BLADED PROPELLER ABOUT THE FUSELAGE.

A New Water Sport for the Old Water Man

The Possibilities of the Flying Boat and Hydroplane

By H. C. DAYCH

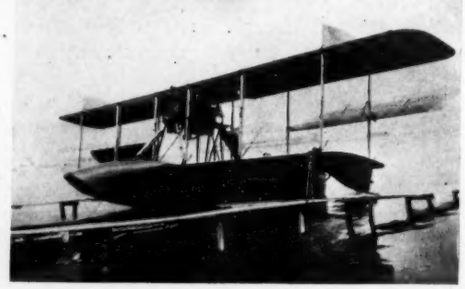
WHEN proud and haughty England has come to the point where she renounces her life-long command of the sea as no longer her supreme desire, and turns to the air as her next field of conquest, what can we poor mites of the water's lure do but faintly echo the refrain?

During the life of the Empire, England has always considered it her special privilege to be the supreme ruler of the seas, but she now considers it of equal importance, if not of more importance, to rule the air as well, and she voices her position in this matter through the Right Honorable Arthur J. Balfour, who said in Parliament, "The time is here when command of the sea will be of no value to Great Britain without a corresponding command of the air." It is to this sport that life-long enthusiasts of water sports, yachtsmen and boatmen will turn;—to the machines of the air, the aeroplane—for a newer sport.

Fortunately, for the yachtsman, the aeroplane does not mean giving up the joys of the water, for there is the hydroaeroplane which holds out to him all the pleasures that were his in boating and yachting, and gives him, in addition, the greater pleasures of the air.

In order to lure the yachtsman to the air, it is necessary to continue to keep him on and near water, his first love, and for this purpose there are two types of air machines in which the water man is interested. These types are the hydro-aeroplane (or rather the hydro-airplane in official Washington nomenclature) and the flying boat.

A hydro-aeroplane is a regular land airplane, wings, fuselage, etc., fitted with pontoons (small boats fitted on the landing gear of the plane, which give the machine its buoyancy while on the water). The flying boat is a boat with wings, a complete boat hull in this type takes the place of a fuselage, which is the body of an aeroplane. The wings are attached as on a regular aeroplane.



THE BENOIST AIR-BOAT IS AN IDEAL CRAFT FOR THE YACHTSMAN

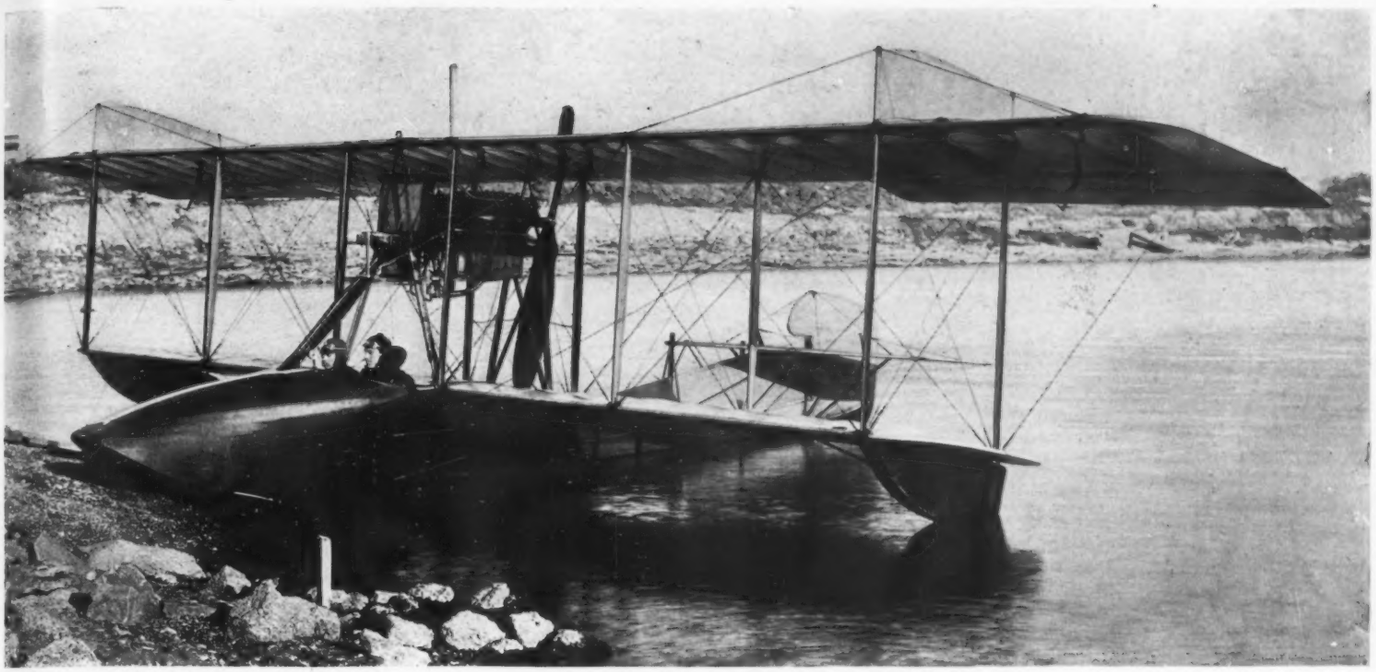
There is one advantage that the flying boat offers over the hydro-aeroplane, and that is there is more substantially-walled room in which to store supplies, fuel, etc., including additional space for observers, and passengers. There is also this advantage that the hydro-aeroplane has over the flying boat: the fittings that secure the pontoons are designed so that the pontoons used for landing on water may be changed for the regular landing gear for alighting and arising from land. The pontoons used on these interchangeable machines are made up of six or more water tight compartments.

The average seaplane is capable of a speed of about 50 miles an hour on water, and up to 85 and 90 miles an hour in the air. This offers speed-thrills two, three and four times greater than afforded by water-craft. Cruising in a seaplane is delightful sport for the machine will skim over the water, just touching the wave tips, under perfect control and in splendid form. The airplane is considerably more sensitive to the rudder than is a boat on the water and is also much easier to handle. The "feel" of a machine in the air is comparable to the "feel" in a boat; that is, the same sensations govern the steering and guiding of the aeroplane and so make it easy for the water man to take up flying. Flying over water also has its thrills, and because of the ease and quickness of the control of an aeroplane the pilot can rise and alight on the water frequently and enjoy every moment of the time aloft. The average plane should be able to rise within 1,500 feet of starting at about 40 miles an hour; rise at the rate of 2,500 feet in ten minutes; attain a speed of about 80 to 90 miles an hour and then alight at a low landing speed of about 40 miles an hour.

Can't you picture the joys of a seaplane and such sport as this?

Of course there is no reason why the seaplane should not fly over land, and it is perfectly capable of doing so. The only thing which a seaplane cannot do ashore is to alight, because it is not fitted with a landing gear to take up the shock or the run. However, there is now talk of fitting up a machine that can use either the land or water landing gear, without having to adjust same before rising. This is sure to be one of the early developments of aircraft that will come after some means is found of housing the landing gear into the main body of the aeroplane while in flight, for this portion of the machine offers great head resistance, which is disadvantageous to flying.

An average medium sized hydro-aeroplane



ONE OF THE NEW TYPE CURTISS FLYING BOATS FITTED WITH A 90 H. P. MOTOR. A CRAFT OF THIS KIND OFFERS MUCH IN THE WAY OF SPEED, AND TO FLY IN ONE IS A MIGHTY INTERESTING AND THRILLING EXPERIENCE

such as the Standard "J. H." training machine which has been adopted by the U. S. Government as international standard has the following characteristics: greatest wing span 43 ft.-10 in.; overall height 10 ft.-10 in.; overall length 27 ft.; total weight of machine 2,000 lbs.; maximum speed 70 miles an hour; minimum speed 37 miles an hour; motor 90 H.P. 4-cylinder; dual control.

The general dimensions of the standard flying boat are about the same as this. Both machines should be capable of 3½ to 4 hours' stay in the air without alighting for additional fuel supply. This gives the pilot a splendid range of action and enables him to cover both ways of a 150 mile trip in about four hours, which is indeed wonderful. Practically all machines on the market of about this same size have the dual control feature which makes it possible to carry a passenger. Of course, if it is the desire of the owner, special construction may be ordered so that the machine can carry two, three, four passengers, or more.

In the "J. H." machine the interchangeable feature is particularly noteworthy.

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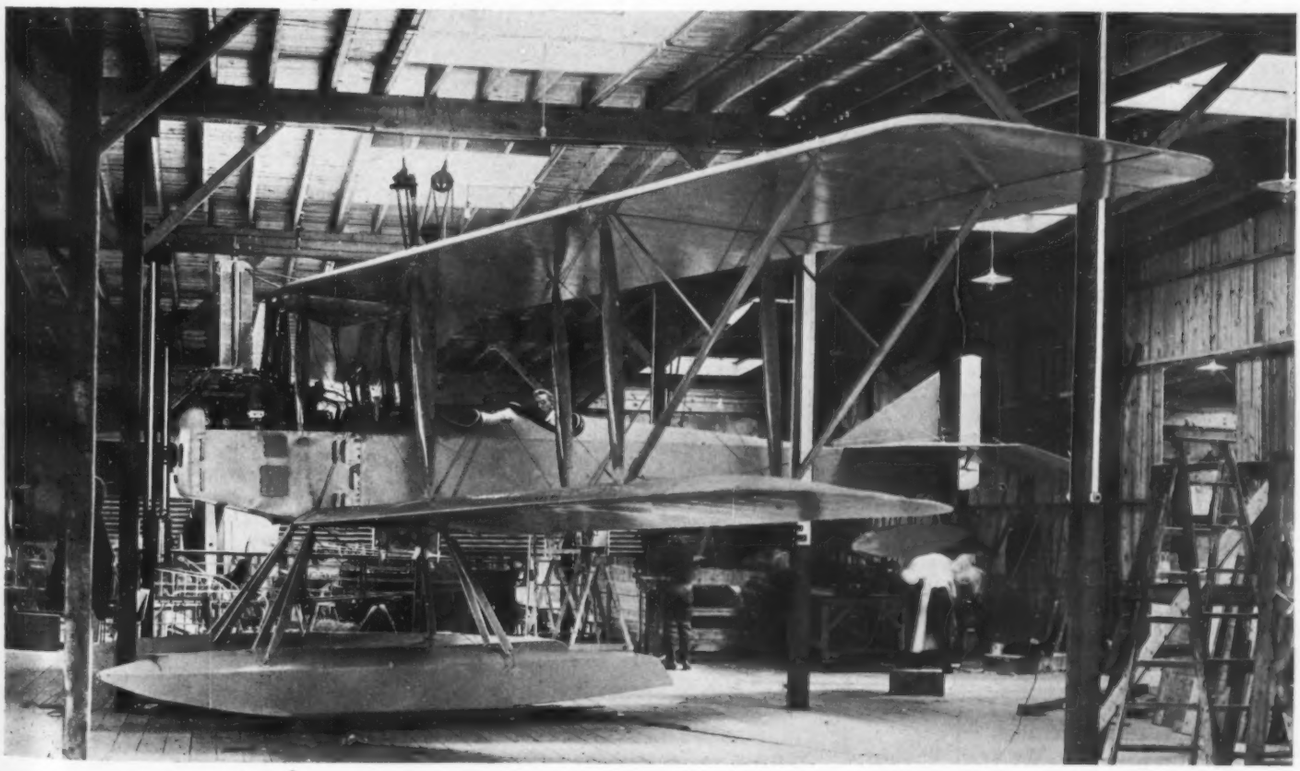
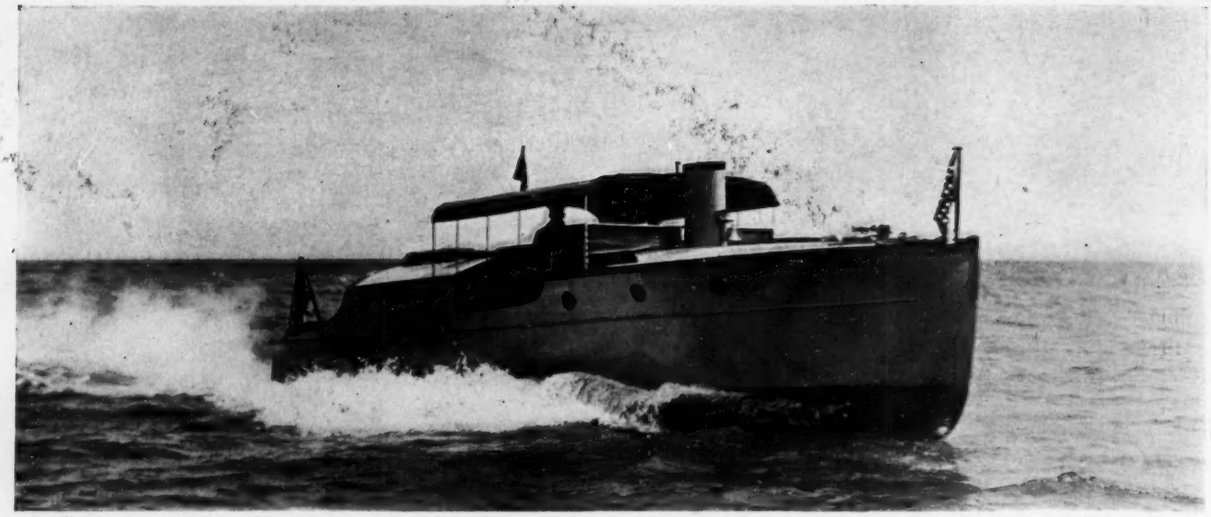


HYDRO-AEROPLANES, LIKE THE PHOTO OF THE ONE SHOWN ABOVE, ARE THE KIND THE ALLIED NATIONS DEPEND UPON IN THEIR HUNT FOR THE ELUSIVE UNDER SEA BOAT. THIS PARTICULAR CRAFT IS RECEIVING ITS FINISHING TOUCHES AT THE PLANT OF THE STANDARD AERO. CORP., PLAINFIELD, N. J.



HAVING A FAIR TURN OF SPEED WITH LARGE ACCOMMODATIONS AND FINE SEA-GOING QUALITIES, THIS 45-FOOTER OWNED BY MR. HARRY STUTZ, OF INDIANAPOLIS, IS A NOTEWORTHY CRAFT

New Express Cruiser for Motor-Car Speed Demon

HARRY STUTZ, of Indianapolis, who put the racing car on the map, has decided to go in for yachting and to this end he has purchased a 40-foot express cruiser from the Great Lakes Boat Building Corporation.

The power plant installed in Mr. Stutz's boat is a happy reminder of the way in which his famous racing car was developed. Year after year foreign cars came over and captured the first prizes in all racing events, much to the annoyance of American manufacturers. In order to demonstrate that Yankee ingenuity was equal to the occasion, Mr. Johns, President of the Wisconsin Motor Co., at Milwaukee, volunteered to build a motor that would win the race if Mr. Stutz would develop a chasis. An agreement was quickly reached between Mr. Johns and Mr. Stutz with the result that for the first time, in 1911, an out-and-out American car captured the first prizes in the Speedway races. When Mr. Stutz got around to the proposition of buying an express cruiser he again naturally turned to Mr. Johns for a power plant with the result that he is now using a 6-cylinder 4¾ in. x 5½ in. Wisconsin motor.

The new express cruiser, which will have her home port on Lake Winnebago, is a 40-footer with 10-foot beam. Her plan permits the utilization of every foot of space. The galley is in the fore part of the craft followed by a main cabin, adjacent to which is the bridge deck over the engine compartment. Abaft the bridge is the owner's stateroom with adjoining lavatory on one side and large wardrobe on the opposite side.

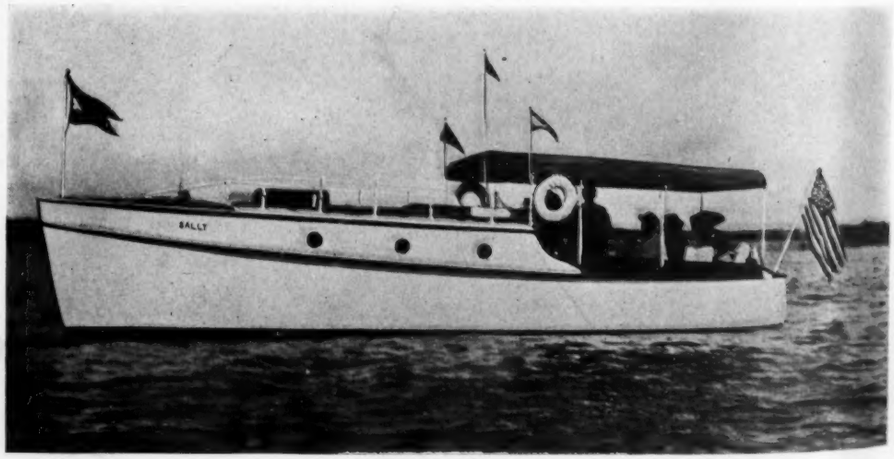
The after cockpit is left open, so forming an inviting clear weather retreat. Aboard a small high speed cruiser of this type cockpits both amidships and aft are necessary for perfect comfort, and arranged as these are, one open and one awning covered, are indispensable.

Sally, a 32-Footer

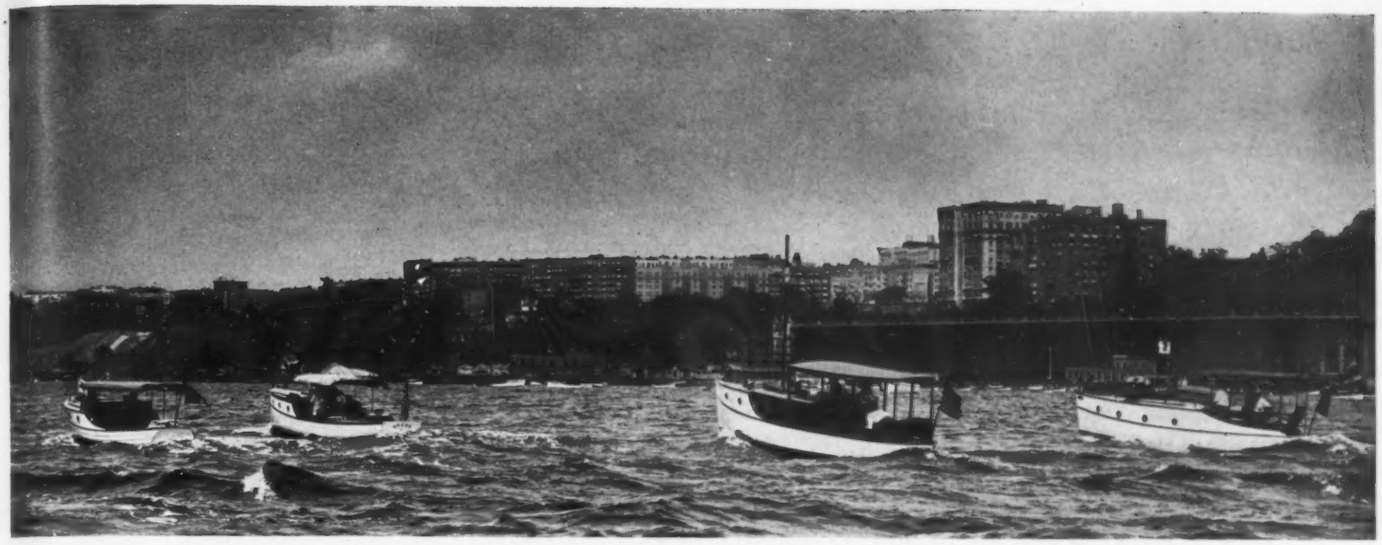
Owned by Mr. J. C. Lawrence, of East Hampton, L. I., the power cruiser Sally is of a type that serves well as a cruiser yet answers well as a boat for afternoon sailing. With an overall length of 32 feet, a width of 8 feet 6 inches and a draft of 2 feet 8 inches the craft sleeps four comfortably and has room for a party of six or eight in the cockpit. Boats of this type—and there are thousands of them—really form the backbone of the boat and marine engine business, as they are comparatively inexpensive to build and to operate and for the money expended give a large return of pleasure to their owners and friends. They are of sufficient size to be able sea boats, yet small enough and of ample shoal draft to explore the small waterways that abound throughout our coast. Equipped with moderate power, boats of this kind have a fair turn of speed. This particular craft, which was built by the Matthews Boat Co., is powered with a 25 horse-power Sterling motor and has a speed of 13½ miles an hour.

Lying to an Anchor

In lying to an anchor for any length of time a boat, swinging in a circle with the tide or wind, will naturally cause her cable to foul on the anchor stock, if the anchor is one of that type. In fact, when lying any length of time, a boat will sometimes get three or four round turns of her cable around the stock and shank of the anchor. For this reason it is advisable when lying to an anchor to weigh at least once a day or so as to clear the cable, as it is obvious that the holding power of an anchor is greatly reduced with the cable foul of the stock. Before anchoring for the night make sure of the time of high and low water for if one anchors with a short cable at the raising of the tide it will break out the anchor.



THE CRUISER SALLY, OWNED BY MR. J. C. LAWRENCE, OF EAST HAMPTON, L. I., HAS A SPEED OF 13½ MILES AN HOUR AND IS POWERED WITH A 25-H. P. STERLING MOTOR



OFF FOR ALBANY. FOUR OF THE STARTERS IN THE RECENT NEW YORK TO ALBANY AND RETURN POWER BOAT RACE

Texas, a 31-Footer

The heavy demand upon American boat and engine manufacturers for motor boats of various types is having a great effect on the industry, and various boat manufacturers having been shown the value of quantitative production have started to produce standard models.

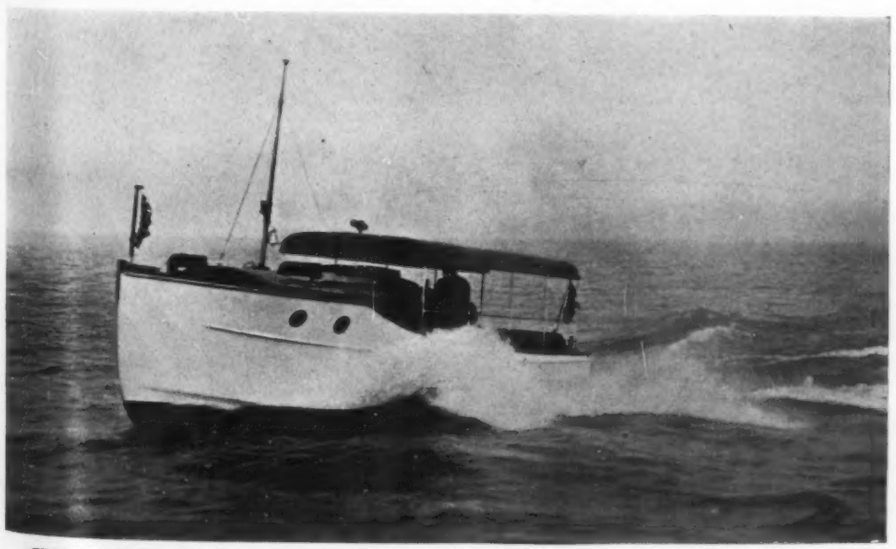
The Great Lakes Boat Building Corp., of Milwaukee, is featuring a stock 31-foot modified V-bottom cruiser of such excellent design and accommodations as to be particularly worthy of notice. The appearance of this boat is striking and its performance as to speed and seaworthiness most remarkable.

The cabin in the little craft illustrated seats eight people comfortably and is fitted to accommodate four at night, there being two built-in berths with lockers underneath, above which are Pullman berths arranged to drop down, thus forming additional accommodation. There is a galley and lavatory adjoining the cabin each of ample size and completely equipped, and the entire arrangement is well lighted and ventilated.

This type of boat with raised deck forward and cockpit aft has been utilized because of its great structural strength, seaworthiness and for the reason that it affords the maximum in well lighted and ventilated cabin accommodation.

The beam, freeboard and flare, taken with low center of gravity, are such as to produce an excellent sea boat without ballasting and the construction, because intended for severe service, is unusually heavy throughout.

The engine is installed under the bridge at the forward end of the cockpit, where it is entirely enclosed and protected and yet made readily accessible through hatches. All of the controls are carried to the steering column at the forward end of the bridge. The standard power plant for this cruiser is a 4-cylinder 5½-inch by 6¾-inch Sterling motor, giving the craft a speed of 16–18 miles per hour.



TEXAS, A 31-FOOTER, THAT HAS A SPEED OF 18 MILES AN HOUR. SHE IS POWERED WITH A STERLING MOTOR AND WAS BUILT BY THE GREAT LAKES BOAT BLDG. CORP.

New York to Albany and Return Race

The New York Motor Boat Club's Ninth Annual Race to Albany and return was successfully run on Saturday, June 30th. It started at 2 P. M. and eight craft set out on the long journey of 235 nautical miles. The handicaps were all computed according to the 1917 American Power Boat Association Rules.

The best time made was by Luetta, owned by Mr. W. E. Little, though Heleentje owned by Mr. H. Benjamin, won the first place as her corrected time for the entire distance was 28 hours and 35 seconds, her actual time being over 34 hours. Luetta got home ahead of the fleet, that is, on elapsed time in 29 hours 38 minutes and some odd seconds, and she managed to do this although racing with faster boats because of the study and thought put into the race by her crew taking advantage of every eddy. Careful handling and the use of the compass and every other aid helped her wonderfully to get back first.

There were few cases of trouble reported, but the most important were due to faulty ignition or to the stoppage of inlet water for the motor owing to the strong suction of the circulating pump.

Driving at night, especially on the Hudson, is usually done with difficulty and in several cases the boats struck sand bars and mud flats and had to be pushed off, but in no case was there a delay long enough to prevent the boats finishing within the time limit of 48 hours. The committee wisely limited the race to cruisers, purposely leaving out high speed express cruisers, because it was their opinion that boat owners did not feel it was fair to try to race the two types in one class, and for this reason the race was one of the most successful from the view point of the individual owner that has been held in a number of years. It is a hopeless task to try by any means to handicap power boats of widely different types, that is to handicap them so that the outcome will be fair to all entrants.

"THE WIDE AND EVER RESTLESS SEA"

A Second Mate's Yarn

A Deep Water Voyage Around Good Hope to South East Africa. Life on an American Windjammer from the Viewpoint of the Quarterdeck

By WM. P. BRADLEY

CHAPTER III

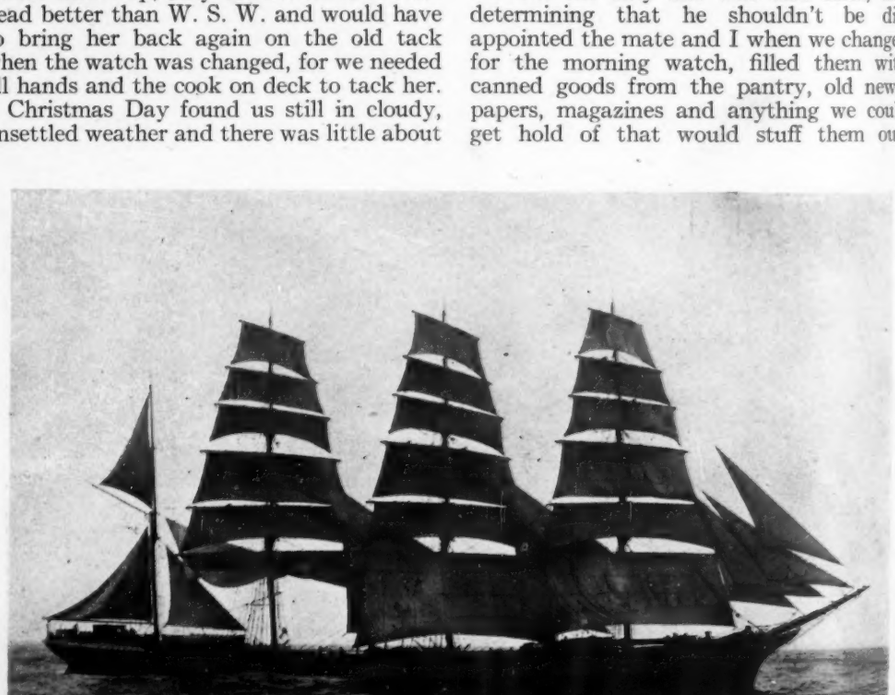
Southward Bound

IN making the run down to the Equator sailing vessels stand well across the Atlantic to the longitude of the Azores before making their southing, so as to have the N. E. trades fair when they are reached, in about lat. 30, and to allow of squaring away for the run to the Doldrums. We had five gales in succession during the first two weeks of our voyage which set us back and made it slow work, and then fair winds for five days from Sou'west and West. Even with fair winds the sea was rough and the old Lillian rolled and pitched until everyone was uncomfortable and tired of the infernal motion. On your feet it wasn't so bad as you could balance yourself to meet the motion, but when sitting down you could never be sure when the chair and you would go sliding across the floor and fetch up against a bulkhead with a bang. The only safe way was to choose a chair or sofa screwed to the deck of the cabin.

One afternoon as I was at work on the door of the forward companionway, putting on some new hinges and leaning over my work, a sea struck the ship which threw me off my feet and I slid down the length of the quarter deck on my face and shoulder, fetching up to leeward on my head against a water cask. I was badly bruised and my right arm was strained, and for a few minutes I was knocked unconscious. The man at the wheel saw me go and not seeing me get up thought I might have gone overboard and called to one of the men to see if anything had happened to me. They picked me up and helped me below, but aside from a shaking up I wasn't hurt.

After making our easting we were in Lat. 34 degrees and the wind then hauled South and S. S. E. so that we had it dead ahead for making our southing. The best we could head up was E. S. E. and we were already as far East as we should go. This condition continued for a week or so and once or twice when the wind canted eastward we would tack ship, only to find we could not head better than W. S. W. and would have to bring her back again on the old tack when the watch was changed, for we needed all hands and the cook on deck to tack her.

Christmas Day found us still in cloudy, unsettled weather and there was little about the day to distinguish it from any other. As I turned out that morning I found that our colored steward, Charlie Welch, who had a room aft off the forward cabin, had hung his sock around the mizzen mast where it came through the cabin house and on his door knob was his empty dunnage bag in anticipation of a visit from Santa Claus. He was the only one who had faith, and determining that he shouldn't be disappointed the mate and I when we changed for the morning watch, filled them with canned goods from the pantry, old newspapers, magazines and anything we could get hold of that would stuff them out.



WHILE IN THE DOLDRUMS SAILING SHIPS SPREAD EVERY SAIL AND THE CREWS ARE KEPT ON THE ALERT AT THE BRACES SO THAT THE CANVAS MAY CATCH THE LIGHTEST PUFFS

leaving a note on top that we expected something extra in the way of dinner that day. The cook let out a yell when he turned out at five and saw the bag filled, and he carried out our orders as to the dinner.

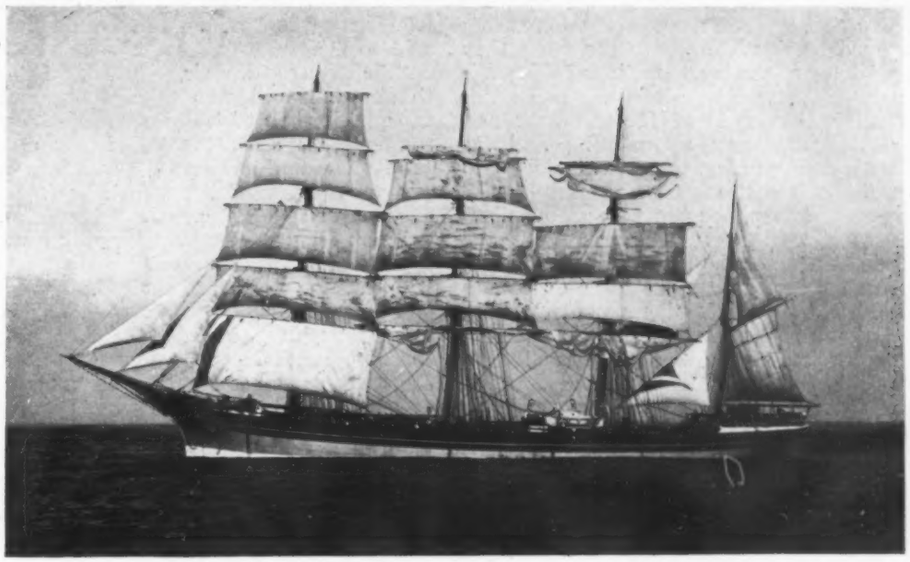
Our menu for that Christmas dinner consisted of tomato soup, roast canned mutton, mashed potatoes, turnips, boiled onions, and a chocolate pudding made of cocoa. It was the best feast we had had since starting, and to me, used to forecastle fare, was a wonder. Forward the men had bean soup, and canned meat, instead of the inevitable salt horse, black coffee, sweetened with brown sugar and a plum duff, for which the cook spent part of the forenoon seeding raisins.

We didn't turn the men to that day, but gave it to them, after wash down and cleaning up, to rest up and mend and wash their clothes, which were in need of attention after the bad weather. I'd been in many ships where Christmas was just the same as every other day, yet our bunch forward did not show in any way that they appreciated our giving them the day. Sailors are not much on showing what they feel except in the way of fault finding, and I didn't notice that our men turned to any more willingly next day on account of their unexpected holiday.

One afternoon, after we had all been cursing the prevailing head winds, we had a hard rain squall and when it passed the wind switched from South to North and we squared our yards and stood off before it hoping that at last the chance we had been waiting for had come, and that the shift would take us down into the Trades. It was New Year's Day that we finally picked up the Trades in latitude 28 degrees 45 mins. North. They were blowing easterly, of moderate strength, and the sun was out the entire day so that all hands, fore and aft, were happy and were counting on the time it would take us to reach the Line. That same afternoon we made out a sail on our starboard beam, which, as we drew together, we made out to be a barkentine sailing about the same course that we were.

From a distance she appeared to have lost her fore royal yard and as we approached her we found that this was so. We got near enough to make out that she was the Albertina of Windsor, Nova Scotia. She was bound to the Line, also, and for three days we had her in sight, the ships sailing at about equal speed. On the morning of the fourth day we lost her and didn't pick her up again.

During this time the mate kept the men busy sail-making and all hands were on deck during the afternoon watch. We had aboard a number of bolts of canvas and the mate cut out a fore upper topsail, a main t'gallants'l, and mizzen topmast st'ys'l. These were brought on to the break of the quarter deck and were sewed, roped and the spectacle irons worked in by those of the crew who were handy with the needle and palm. This work took a week or more and the sails when finished were an excellent fit and were a very workmanlike job.



ON OUR JOURNEY WE WERE OFTENTIMES IN SIGHT OF SAILING CRAFT BOUND FOR THE FOUR CORNERS OF THE WORLD

The sailor is sort of a jack of all trades, and one that had been to sea any length of time on deep water ships usually knew all the common stitches used in sailmaking, even if he did not know the fancy ones, and could rope and leather a sail as well as many sailmakers. When the sails were finished they were stored away in the sail locker awaiting the more strenuous weather of the Cape before bending. During the voyage the mate cut out and the men sewed almost an entire suit of sails for the bark so that she came back with a much better suit of sails and gear than when she left.

The run down through the Trades to the Line was delightful. Every morning on deck I had a salt water bath at wash down, pulling off my clothes and having one of the men throw several buckets of water over me. We couldn't always spare fresh water with which to rinse off, but when we got down to the region of rain squalls, we would put buckets and barrels under the scuppers from the deck houses and catch a supply in which all hands would revel in a good wash—all except our passenger, at least, who seemed to have formed quite an aversion to water of any kind, and neither the mate nor I could get him to join with us in our daily rub downs. We were lucky to get rain water as, when we opened one of our spare wooden water casks on deck we found the water in it had gone bad, the taste and smell being terrible and sufficient to make any one sick who attempted to drink it. We, therefore, had to spill it overboard and use the water from the iron tank below decks, which was in good shape. There was hardly enough here, however, to take us to Port Natal, and we had to figure on refilling our wooden casks with rain water. Every time it rained we would, therefore, use most of the water to help refill the big cask. Water often goes bad on ship board, especially in wooden tanks when sealed with an air tight bung. I have never heard why this was so, though there must be some chemical change that takes place in it.

WHERE THE TRADE ROUTES OF THE WORLD CONVERGE WE WERE CONSTANTLY SIGHTING SAILS

The trades were very strong and we knocked off from 2 to 3 degrees of latitude a day on our run to the Line until we reached the latitude of 3 degrees North where we ran into the belt of calms known as the Doldrums. Here we drifted round with hardly steerage way and were five days making three degrees of latitude. It was terribly hot on deck and the mate kept after the men constantly swinging the yards and bracing them to catch every puff

of wind until we all became irritable; the men especially were more or less ugly from being driven constantly to the work they were doing at the braces. During this stage of the voyage we were scraping and sandpapering the inside of the bulwarks and houses preparatory to painting and, as there was no awning, the men would try to get in what little shade was cast by the houses and rails, the sun being so well to the southward that there was still some shade during the daytime. They would no sooner get in a good position than the mate on the alert for every breath of air would feel a puff on his cheek and sing out:

"Fore and main weather braces! All hands lively now!" and he and I would run along the lee side slacking off the braces while the men, grumbling and moving as slowly as they dared, would swing the heavy yards round and then make up the coils on the pins again.

I had my first run in with the men at this time. An unusually good puff had come along and the mate happened to be below. I gave the order to trim yards to catch it when Griffith, the Irishman, was so deliberate as to make it a direct challenge to my authority. I saw that I had to take the matter in hand at once and coming along behind him shoved him with both hands on the run to the fore upper topsail brace, saying: "Didn't you hear the order? Don't you know enough to jump when spoken to?"

He swung around sharply and let drive at me with his fist, but I ducked and clinched with him, catching him around the thighs, lifting him off his feet and throwing him to the deck where I landed on top. The men were around us in an instant as we wrestled over the deck for the mastery, they waiting for a chance to get in. I found my hands full for Griffith was a very tough man of about 165 pounds weight, but I had the initial advantage of being on top and kept him underneath, finally getting him by the throat and choking him until he was quiet. Charlie Welch, the steward, hearing the commotion, stuck his head out of the galley and seeing what was up jumped aft for the mate, who appeared on deck with his gun just about the time I had Griffith under control, and in time to keep the rest of the crew, both watches being on deck, from coming to Griffith's aid when they saw that I was getting the upper hand.

Sizing up the situation and seeing the ship aback by reason of the order not having been carried out, he sailed into the group around us ordering them to the braces to trim yards and then turned to me and pulled me off Griffith, who by this time was quiet and made no effort to rise.

"What's the trouble, Mr. Bradley?" he said to me.

"He swung at me, sir, when I hustled him to obey the order to trim yards, and I thought it time to let him know who was running this ship, the officers or men."

"I guess he knows now," I added, with perhaps a touch of pride, for I had gotten away with my first physical encounter.

I don't know whether or not the mate approved, but at any rate he backed me up and dragging Griffith to his feet told him to obey the order he had received, and sent him staggering towards the fore upper topsail brace. The yards were trimmed and the order passed to get back to their work of scraping, but all that afternoon the men looked black as thunder and were talking under their breaths to each other.

It is just such things as this that make friction on board ship. I don't think I was hasty and if I hadn't asserted my authority in that way at that time the men would have known that I was easy and would have put it over me upon every subsequent occasion. I certainly wasn't looking for trouble and didn't want any. I don't believe Griffith wanted it either, but being irritated at the constant ordering about he had gone further than he would ordinarily in trying to tantalize an officer by his deliberateness in obeying an order. No blood was spilt, however, and the friction didn't last long, for we crossed the Line the next day and picked up a light S. S. E. wind, to which we braced up sharp on the port tack and stood in towards the Brazilian coast.

In this stage of our southern journey, the great trade routes of the world converge and we were constantly in sight of shipping, being passed by two or three steamers in the South American sugar trade and sighting several sails nearly every day. In this hot weather also, those members of the crew who were good barbers were called into service and everyone, mates included, had his hair cut for the first time since we left port. John, the Swede, and Charlie Welch, the steward, were the best barbers in the outfit, and one of the men had his hair cut by these two, one doing one side and the other doing the other side. The result was not all that could be desired but we were still over two months from port and there was a chance for the hair to grow again and obliterate the curious effect that was left by the two artists before we reached civilization.

The wind continued light S. E. to S. S. E. and we made more westing than we desired. On January 17th the lookout sighted land ahead which proved to be the Brazilian convict station of Fernando de Noronha, 130 miles off the coast of Brazil in 3 degrees 50 minutes South. We were about three miles to the eastward of the island when it was getting dark. From where we were headed it was doubtful if we could pass without tacking ship. We held on, however, braced up sharp and just managed to clear it about midnight without tacking. The head winds kept edging us into the Brazilian coast and finally we got in so far that we had to tack ship and stand to the eastward.

After eight hours on this tack we came about again and on January 20th in latitude 7 degrees 21 minutes South, we sighted the Brazilian coast and stood off and on all day, sometimes standing in until we could see trees and smoke from the fires of the sugar plantations on the shore.

There was a lot of traffic up and down the coast and we felt once more in touch with civilization. We kept the coast aboard for two days until we finally picked up the regular S. E. trades and could lay a course a little W. of S. which took us off shore on our way towards the latitude of the Cape of Good Hope. While off the coast we passed a number of Brazilian fishing boats, some of them twenty or thirty miles off shore. They were very primitive and consisted of four or five logs roped together. Each carried a sail on a single mast and steered by an oar or sweep over the stern. In the middle a raised box three or four feet above the logs formed a sort of cockpit in which the crew lived, and which raised them above the water when the logs themselves were awash. In smooth water they might have been all right but I don't see how they could have lived or carried sail in much of a sea.

(To be continued)

Some Remarks on Wood

Interesting Facts About Lumber, Its Growth and Manufacture, that Few Yachtsmen Know of

By WOODPECKER

By arrangement with the English *Yachting Monthly*

INASMUCH as the woodpecker, the bird-god of boatbuilders, is both beautiful and clever, I ask to be pardoned for assuming his name. But I also have adzed the oak and made not a few "chips" in my time, so I may claim more than a nodding acquaintance with him.

Wood is introduced to most of us in the form of boards, planks, or battens; in strips or blocks; or in manufactured articles. Few know it throughout its conversion from a tree into these various forms, and fewer still know how it grows. I have no intention of posing as one who knows all these things, but without going deeply into the question of how and why the tree grows, it is interesting to study the wood as it is given to us by nature, which study will suggest how best to convert the tree for our various uses.

A portion of the trunk of a tree, of the exogens division, presents certain well-known features. On the ends we see the annual rings. Each year's ring is made up of spring, summer and autumn wood fibers. The difference between spring and autumn wood is caused by the membrane of cortex tissues—bundles of tissues forming the skin or rind of the tree and situated just under the bark, being rather loose-fitting in the spring, and so allowing the wood-fibres to swell when growth starts at this season, which swelling is the cause of these early fibres having rather thin walls. As growth goes on throughout the summer the membrane gradually exerts pressure on the fibres as they are formed, until by autumn it is a tight fit; and so this season's fibres are compresses, and have to grow into themselves; and so the walls of the autumn fibres are thicker than those of the spring fibres. Consequently autumn wood is stronger than spring wood. This fact explained, we can leave the wood fibres for the moment, and note the next most prominent features.

If the ends of the trunk have been exposed to drought for any length of time shakes present themselves. These shakes approximately quarter the circle: that is to say four main shakes generally appear at right angles to each other. These are usually accompanied by little shakes here and there, but always normal to the rings. The primary cause of all the shakes is the shrinkage of the wood fibres. So far as each fibre is concerned the shrinkage is uniform breadthwise: the fibres are like hollow needles, and shrink in on all sides. It follows then that the shrinkage of the whole mass must be greater circumferentially than diametrically. So the rings split at their weakest parts, to allow the fibres to contract uniformly. The weakest parts of the rings are where the largest medullary rays cut through them. The medullary rays are made up of soft cellular tissues, the cells being much longer radially than otherwise, and more easily burst apart by the shrinkage of the rings.

If one end of the trunk is cleaned with a plane the larger medullary rays will be visible to the naked eye. They are readily traced in oak, and account for the beauty of "Quartered Oak." They also give that sheen we see on all wood when it is cut from the tree as a radial section. But they are a source of weakness, and an effort will be made later to show how to avoid the accentuation of this weakness. In beech-planes, for instance, the rays must not lie parallel to the sole, for the sole would never present a flat surface for any length of time. Beech shows the rays very clearly.

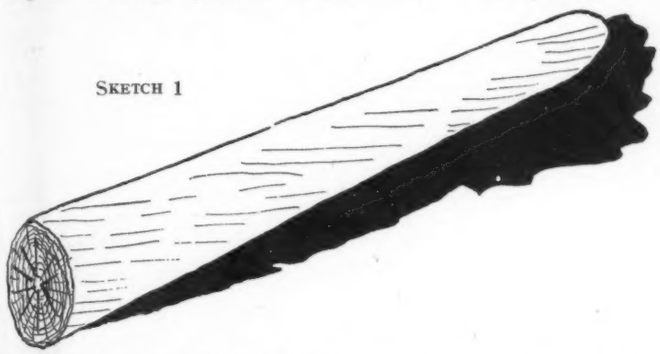
The next feature which is of interest to us is the growth direction of the wood fibres. This is not the same thing as the direction of the grain, for the grain is simply the picture presented by the differently constituted spring and autumn fibres. To find the growth direction we must look at the cortex tissues, and our tree trunk must doff its bark for this examination. The naked log has a somewhat streaky skin. The direction of the streaks is the growth direction of the fibre. Few logs show the streaks running straight from end to end, the general direction being a right or left spiral. This feature is sometimes called "torse fibre," because the tree grows in torsion. Its cause is unknown, though there are many theories extant, each of which might be true for some trees.

We have all seen masts with spiral shakes in them at a good angle from the vertical, and such masts prove exceedingly strong, but heavy. These shakes are caused by the rings splitting at the medullary rays. I do not mean that the rays are like radial plates or webs, for they are rather like innumerable tiny tubes penetrating the wood. But the shakes run spirally because the fibres run thus, and severance is easiest parallel to the fibres.

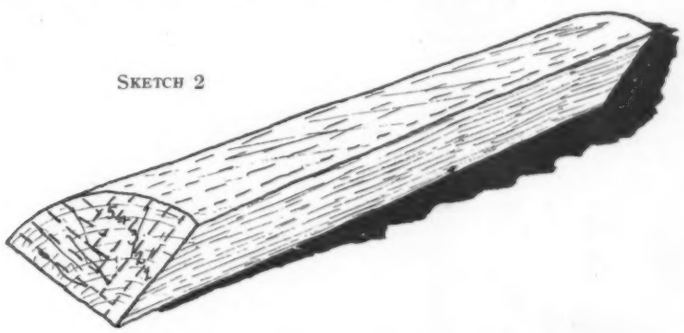
Having dealt thus briefly with the anatomy of the log in so far as this affects our interests as wood workers, we can now cut it up.

I have sketched (Sketch 1) a log in the nude, and shown the streaks running in a right spiral. It will be noted that the log is quite straight. So we can assume that the annual rings represent straight parallel tubes. If we now quarter the log we will find the grain quite straight, because the grain is the edge of each tube of spring and autumn fibres. But the growth direction of the fibres is as shown by the streaks, so that we know that the log is not straight-grown, though straight-grained (see Sketch 2, disregarding dotted lines).

SKETCH 1



SKETCH 2



Now suppose we plank the quarters for, say, yacht deck stuff measuring 3 in. by 2 in. The sawyer would convert each quarter into 2 in. planks, as in Sketch 2 (dotted lines). This gives the maximum of edge-grain. On the sides of each plank we will have straight grain; but the growth direction of the fibres is through the plank, as will be seen by the streaks on the edge.

We now see why the plank will plane easier one way to the growth, and why we must turn such a plank end for end to plane the opposite side. This is what is meant by saying "against the grain," and I do not suggest that the term should be dropped, for the grain can easily mean the disposition of the fibres, but it should not be confused with end-grain, edge-grain, flat-grain, or oblique-grain, all of which have their uses as will be seen later.

The spiral growth of the fibres is greatest at the butt, and the inner rings show it in a less degree than the outer, so that the whole mass seems to have twisted on its

center. The sketch shows torsion growth almost at its worst, though the butts of many logs show as much and are considered, as good timber, although they should not be used for small scantlings. A little study of the sketch is worth while, as from it we see why certain planks are better than others because of the peculiar disposition of the fibres.

Nos. 1 and 2 show the fibres going through the plank's thickness, thus giving "short grain." Now suppose the planks, instead of being further converted into 3 in. breadths, were to be "deeped" to ⅜ in. thick, thus giving broad boards for boat-planking. The short-grain would be the source of many breakages. To get the "longest grain" from such a log we should cut it as the reverse of Sketch 2, that is into "flat-grained" planks, and so have the growth parallel to the surface of the planks, and not through them. Correctly speaking, the growth is parallel to the surface of the rings, but nominally the planks will have flat grain or growth.

But if we deeped such planks into ⅜ in. boards we would be up against two more serious evils, namely, the tendency of the boards to split at the medullary rays, and the tendency to "warp" or "cap," always present in flat-grained timber. This latter is explained by the circumferential shrinkage already referred to. As the circumferential shrinkage is parallel to the rings, it follows that when decrease in the breadth of the board takes place, the edges must rise. For though the arcs shorten, their ends are still in the same position relatively to the sides and edges of the board. It is for this reason that flat-grained boards warp in drying, so that the convex side is towards the heart. It may be of interest to mention that panels in a yacht's saloon are fitted with the heart side showing, so that the heat of the room tends to lessen the capping tendency rather than aggravate it, as would be the case if the panels were placed in the reverse way. This rule is observed in all cabinet fittings.

There is another feature of flat-grained boards which I ought to mention. It is that such boards will often warp in such a way that two diagonally opposed corners will curl up more than the other two, and the board is said to be "in winding," though why it should be so described I do not know. It has rather warped "awry." The cause of this feature is torsion growth; for as the fibres shrink breadthwise, that is, normal to their line of growth, if follows that the board must warp similarwise, irrespective of its shape.

The tendency to split through the medullary rays is a serious objection in thin boards, and is the cause of the too common weather-shakes in our boats; and also the source of many breakages in planking. Thin boards should show edge-grain, and the rays will run from edge to edge (nominally), and act as rivets binding the super-imposed layers of wood together, which is one of the functions of the rays in the tree. Thus the best planks in Sketch 2 are Nos. 3, 4 and 5, the mean between the short-grain and flat-grain. But, as already suggested, such a log should be used only for large scantlings.

The best timber for nearly every purpose should be cut so that the surfaces which have to stand exposure and wear and tear show edge-grain. The nearer this edge-grain approaches true radial grain the better, for this surface will withstand friction and the changing elements much better than any other. For this reason barrel staves are split from the log, so that the sides show the wood in radial section, and in this way weather-shakes are avoided. For though we can put up with leaky boats, our barrels "mustn't ever"!

The 1917 Lloyds Register

Yachtsmen are always very much interested in *Lloyds Register*. Every year as the publication appears there are a lot of new names and a lot of new boats listed. Some of the old ones change hands, and some seem to go out of existence entirely. It is hard to tell whether they drift away from their moorings, or burn up, or are lost. However, they go.

This year the book contains a larger list than any of the previous years and, although this is a time in which the country is much upset over the great war, it seems that yachtsmen continue to take great interest in the various craft and the sport they love so well.

While the clubhouse may be closed or the yacht laid up for a season without permanent detriment the case is very different with a publication that deals with yachting. This is especially so with the *Register* for as long as the yacht fleet exists a record of it is necessary and because of this the publishers of *Lloyds* decided to issue it as usual, in spite of the probable lessened demand and the various adverse conditions resulting from the war. The *Register* is unchanged in size and form and it has 520 pages of letter press, with 48 colored plates. The number of yachts entered in the book proper is 3,590, yacht clubs 546, associations 38, club and association burgees 600, private signals of yachtsmen 1,872. These are interesting figures, as they show the large interest there is in the best of all sports. This book is published by Lloyds Register of American Yachts, 17 Battery Place, New York City.

Astronomical Time

Many persons attempting nautical astronomy experience more or less difficulty in understanding astronomical time.

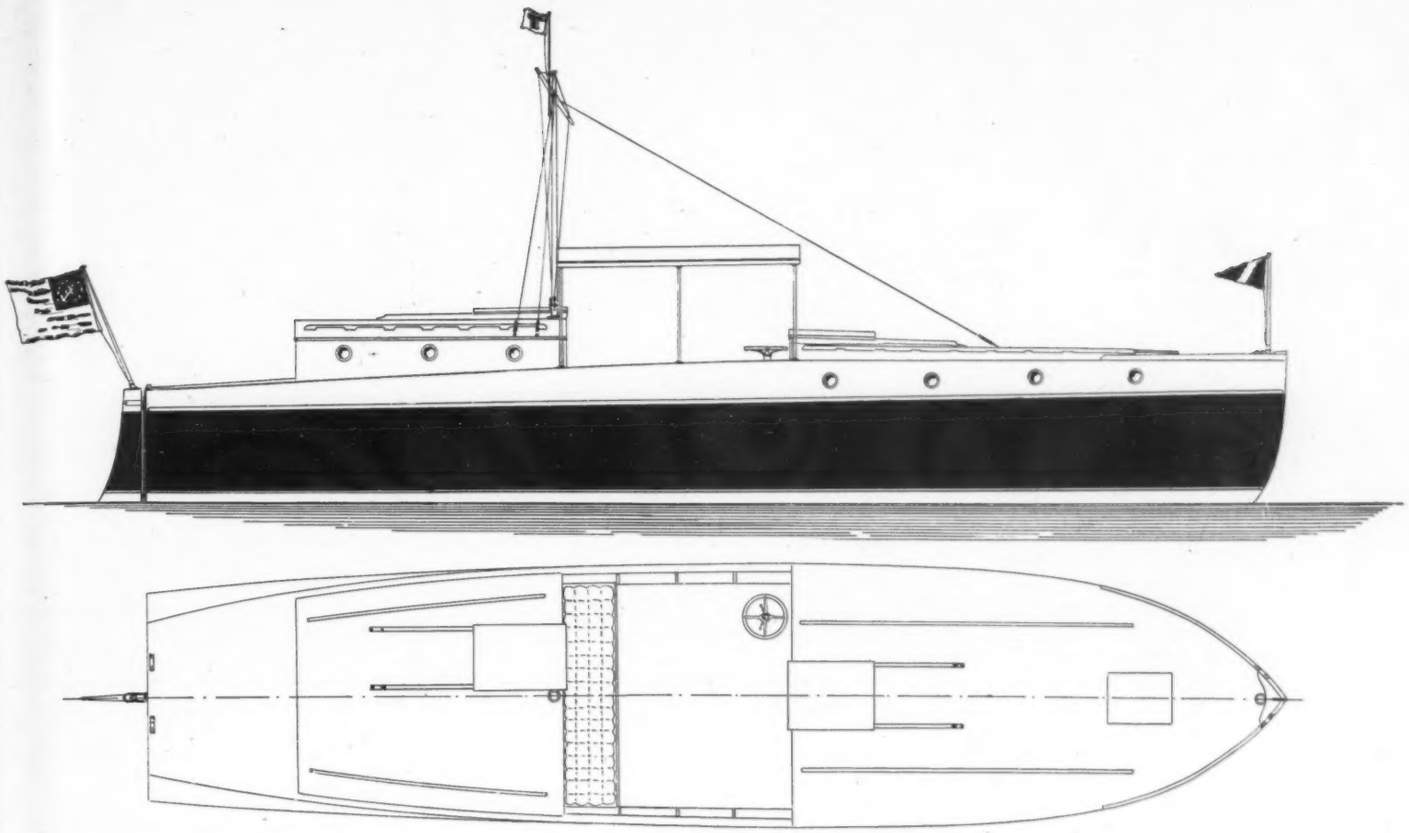
The following explanation may be thoroughly comprehended by anyone interested.

The civil day is reckoned from one midnight to the next. The first half is called A. M., and the second half P. M. It is the date used in ordinary business transactions.

The astronomical day is reckoned from one noon to the next, and the hours are counted consequently from 0h to 24h. It is the time used generally in astronomical calculations. When the civil date is A. M., the astronomical date is one day behind it, and when the civil date is P. M., the dates correspond.

By a little study it may be noticed that astronomical time is the hours past the last noon, and the civil date of that noon will be the astronomical date.

Suppose it is desired to turn the civil date, July 4th, 6h 10m A. M. into astronomical time. It is clear that 6h 10m A. M. is 18h 10m past the last noon. It is also clear that the last noon occurred on July 3d. Therefore the astronomical date and time is July 3d, 18h 10m. Suppose the civil time is August 4th, 7h 12m P. M. The time is 7h 12m past the last noon, and the last noon occurred on August 4th. It follows, then, that the astronomical date and time is August 4th, 7h 12m, which corresponds with the civil time and date.



THE PROFILE AND DECK PLAN OF THE EASTERN SHIPYARD'S TWIN SCREW 30-FOOTER HAS ALL THE EAR MARKS OF THE MODERN CRUISING MOTOR BOAT

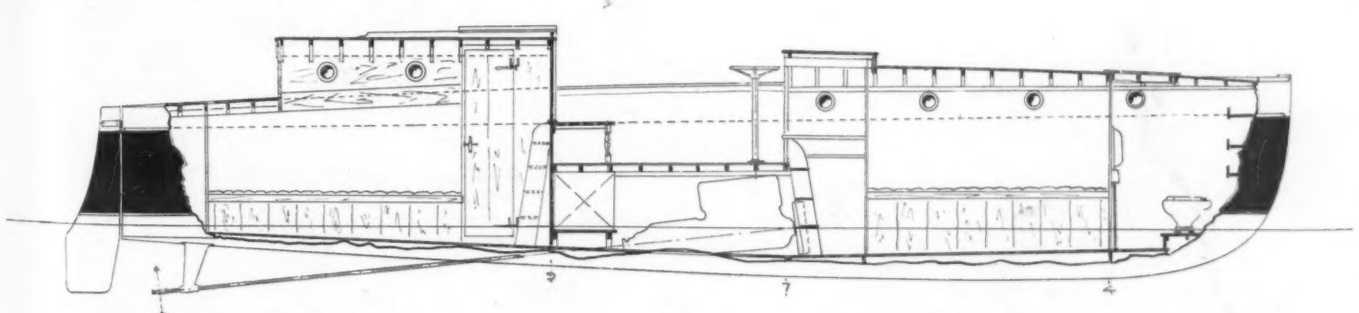
A Twin Screw 30-footer

The Possibilities of an Inexpensive, Well Engined, Big, Little Boat

WITHOUT doubt, a great number of motor boat men will be interested in the plans of the unusually roomy 30-foot twin screw V-bottom cruiser, from the office of the Eastern Ship Yard Co., the plans of which are shown herewith. Perhaps of most interest to the man who contemplates building an inexpensive boat for cruising, yet retaining sufficient speed to get out of its own way, is the unusual sleeping and cruising accommodations. These consist of two separate cabins, each having over 5 feet 4 inches of headroom and containing two full length and (when extended) full width sleeping bunks. There is a fair sized toilet room in the eyes of the craft fitted with water closet, shelves, and a folding lavatory, the fresh water supply being provided for by a galvanized tank fitted under one of the berths and having its filler on deck. The after cabin, for a boat of this size, is large, its entrance being from the midships cockpit. Upon the port side of this cabin is a full length closet and, right opposite, the galley with stove, ice box, folding sink, lockers, and shelves for dishes and cooking utensils.

The power plant consists of twin Model D Gray Motors which give a total of approximately 50 horse power. The speed with these will be 18 miles an hour. A two-engine installation in a small boat of this kind has so many things to recommend it that the designers could not help but adopt it. In the first place the engine heights, as may be learned from the dimensioned engine drawing shown, are low and the length required for the installation much less than that for a single motor of equal horse power.

In a boat of this type, or any other kind of a boat, twin screw installation has especial advantages that are not to be had in a single engined boat. A twin screw outfit is less apt to have a serious breakdown than a boat fitted with a single engine, and although there is little likelihood nowadays of any modern boat motor going dead,



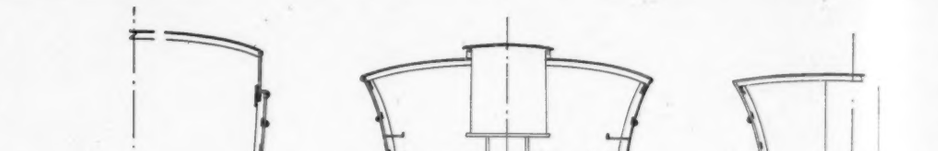
THERE ARE TWO CABINS IN THE BOAT, ONE FORWARD AND ONE AFT, WITH THE MOTORS PLACED UNDER THE MIDSHIPS COCKPIT

except for minor reasons,—such as a stoppage in the gasolene line, preventable ignition troubles, or weeds or dirt lodging in the inlet water piping,—there is always a chance despite the best laid plans of striking something and either bending the wheel or even in losing it entirely. This chance is cut down by one-half by using two engines and alone is a point well worth considering before powering the boat.

Then there is the matter of control. A single screw boat always tends to turn either to the port or starboard, depending upon the direction in which the motor revolves. A twin screw boat by working one engine only will run slower, which is a worth while feature and, if the engines are installed properly, the craft will handle with one engine as well as a single screw boat.

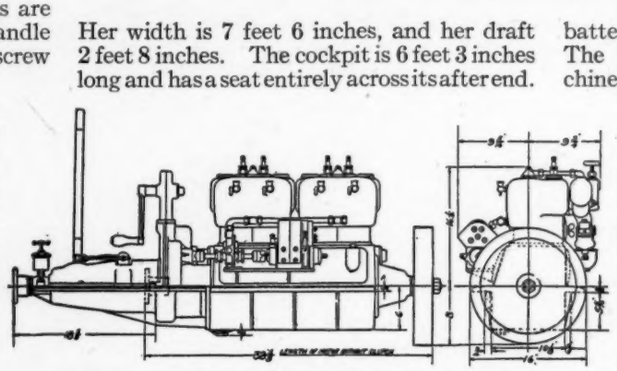
In this particular craft the adoption of two motors allows the companionway to be cut amidships, its ladder passing between the two flywheels thus leaving the front end of each motor open and readily accessible at all times. The plans show full head room at the forward end of the motor room which allows of plenty of elbow room for starting the motors and also creates an entry way in which wet clothing may be hung. The fuel supply tanks are against the after cabin bulkhead under the cockpit and are of 80 gallons capacity. This tankage allows a wide cruising radius.

The overall length of the boat is 30 feet.



THE TYPICAL SECTIONS OF A 31-FOOT CRUISER SHOWING THE CONSTRUCTION AND LOCATION OF TWIN MOTORS

Her width is 7 feet 6 inches, and her draft 2 feet 8 inches. The cockpit is 6 feet 3 inches long and has a seat entirely across its after end.

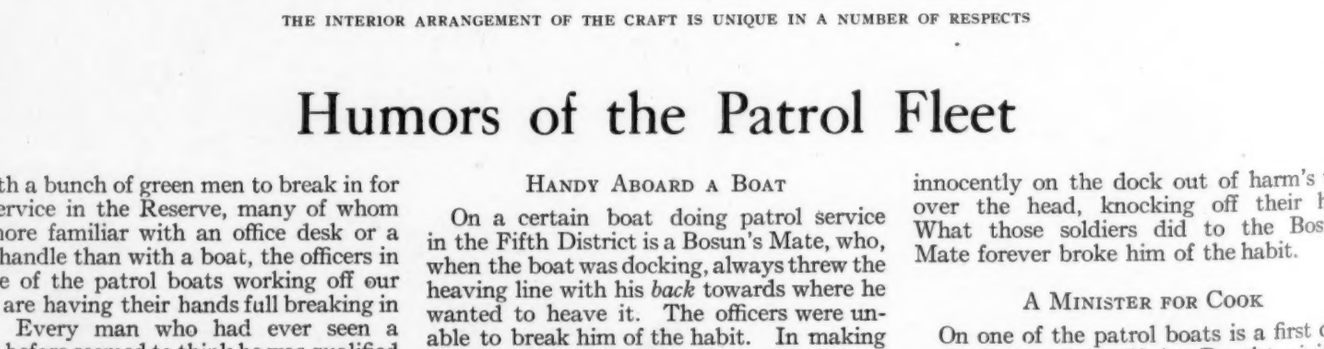


LINE DRAWING OF A GRAY MOTOR, SHOWING ITS SMALL OVERALL DIMENSIONS

The construction of the boat includes oak keel and hackmatack frames; these are placed at long intervals with heavy seam battens running fore and aft to give strength. The planking is half-inch cedar and the chine logs and deck stringers of yellow pine. The decking and other outside joiner work is cedar.

The interior is finished somewhat differently from most boats, the trim being of cyprus stained silver gray and waxed finish, this being inexpensive and yet very effective. All the hardware is of galvanized iron, that used in the interior being painted black.

With a straight sheer and painted black on the topsides below the fender moulding, with white above it and white below the water line, standing top, light military mast and yard, the craft presents a pleasing appearance and is of a type that is quite distinctive.



THE INTERIOR ARRANGEMENT OF THE CRAFT IS UNIQUE IN A NUMBER OF RESPECTS

Humors of the Patrol Fleet

With a bunch of green men to break in for the service in the Reserve, many of whom are more familiar with an office desk or a plow handle than with a boat, the officers in charge of the patrol boats working off our coast are having their hands full breaking in men. Every man who had ever seen a canoe before seemed to think he was qualified to be anything from a first class seaman to a commanding officer, and some of them got by the enrolling officers with it. This has resulted in many humorous situations. Undoubtedly, the regular Navy has had much the same experience.

Handy Aboard a Boat

On a certain boat doing patrol service in the Fifth District is a Bosun's Mate, who, when the boat was docking, always threw the heaving line with his *back* towards where he wanted to heave it. The officers were unable to break him of the habit. In making a landing at the dock at Fort M—— one day, he coiled the heaving line down in approved fashion, took it in both hands and with his back carefully turned to the dock, he let go over his shoulder. The line went wide, of course, by some 50 feet, but caught three of Uncle Sam's soldiers standing innocently on the dock out of harm's way over the head, knocking off their hats. What those soldiers did to the Bosun's Mate forever broke him of the habit.

A Minister for Cook

On one of the patrol boats is a first class cook who in private life is a Baptist minister, or circuit rider, who is serving his country by doing work in a position it is hard to fill. He will insist, however, on always addressing the commanding officer as "Brother," when he speaks to him or announces meals, and the galley issues forth revival hymns at

all hours, seemly or unseemly. On a certain occasion the Chief Bosun's Mate sent one of the seamen up to a drug store to buy some medicine for a jumping toothache that happened to have alcohol in it. The State was "dry" and the seaman reported back that the medicine couldn't be had without a doctor's prescription. Whereupon the C. B. M. in deep water nautical style proceeded to tell the seaman what he thought of the laws of that State. While the tirade was going on the words of "Yes, We Shall Gather at the River" came floating through the galley hatch. It was a toss up which would drown the other out. The preacher finally won.

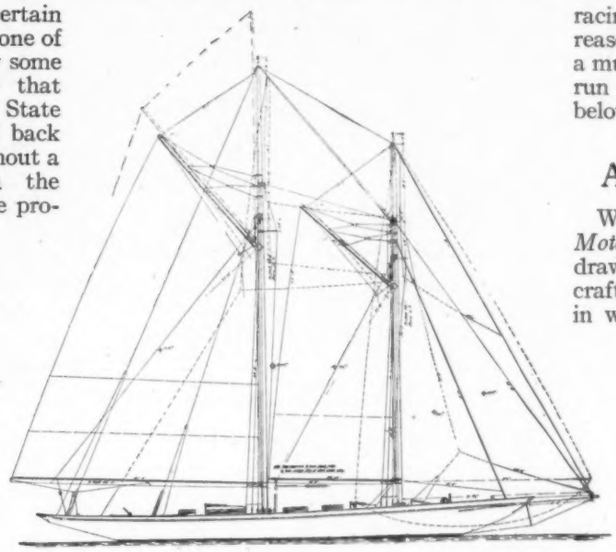
NAVAL ETIQUETTE IN ANSWERING

Most of the men are entirely lacking in any sense of naval usage or etiquette. On one of the boats is a seaman, 2nd Class, who in receiving a command invariably answers his commanding officer thus:

"Aye, aye, sir! You said a mouthful that time, sir!"

A 46 Rating Schooner Yacht

Amorilla, a 46 rating schooner yacht, designed by John G. Alden of Boston, Mass., and built by Lawley in the spring of 1916 for Mr. Demarest Lloyd of the New York and Eastern Yacht Clubs, is an excellent example of what the present rating rule turns out in boats of this size. The construction is as heavy as a fisherman of the same tonnage, and the interior fittings most comfortable and complete. Below decks is one large double after stateroom, with a large toilet-room connecting. There are two comfortable single staterooms and a second toilet-room, a roomy steerage and a most attractive main cabin with two wide transoms, side boards and a small tile stove set in flush with the bulkhead.



The entire interior is very handsomely finished in paneled mahogany, and the staterooms in white and mahogany. On deck the bright work is teak with a white pine deck.

Provision has been made for power by the engine-room just forward of the saloon and a Matthews electric-lighting plant is now installed there. Beside this to port is the captain's room, while forward, and entirely separated, is a large galley and a roomy forecastle for as many as six men.

Amorilla has proved herself very stiff and able, and Mr. Lloyd contemplates a trip to the West Indies after the war. She won three out of five runs on the N. Y. Y. C. Cruise in 1916 besides several squadron runs in the combined classes.

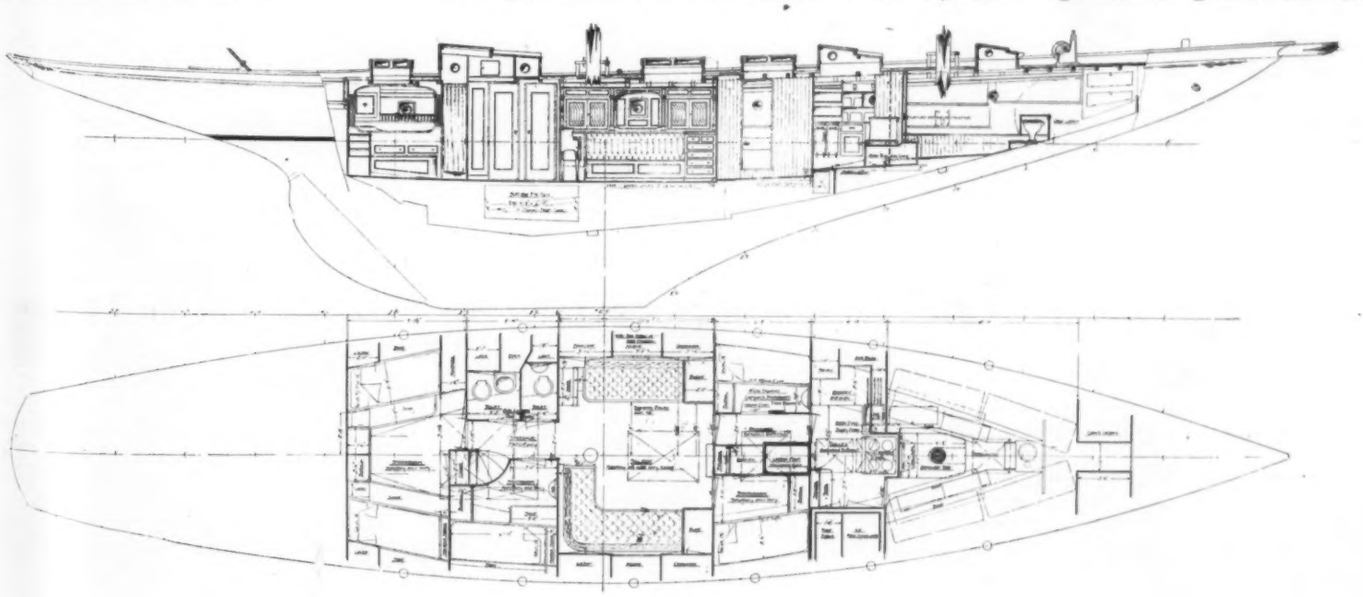
Her principal dimensions are L. O. A. 83 feet, L. W. L. 56 feet, beam 16 feet 6 inches, draught 10 feet 9 inches.

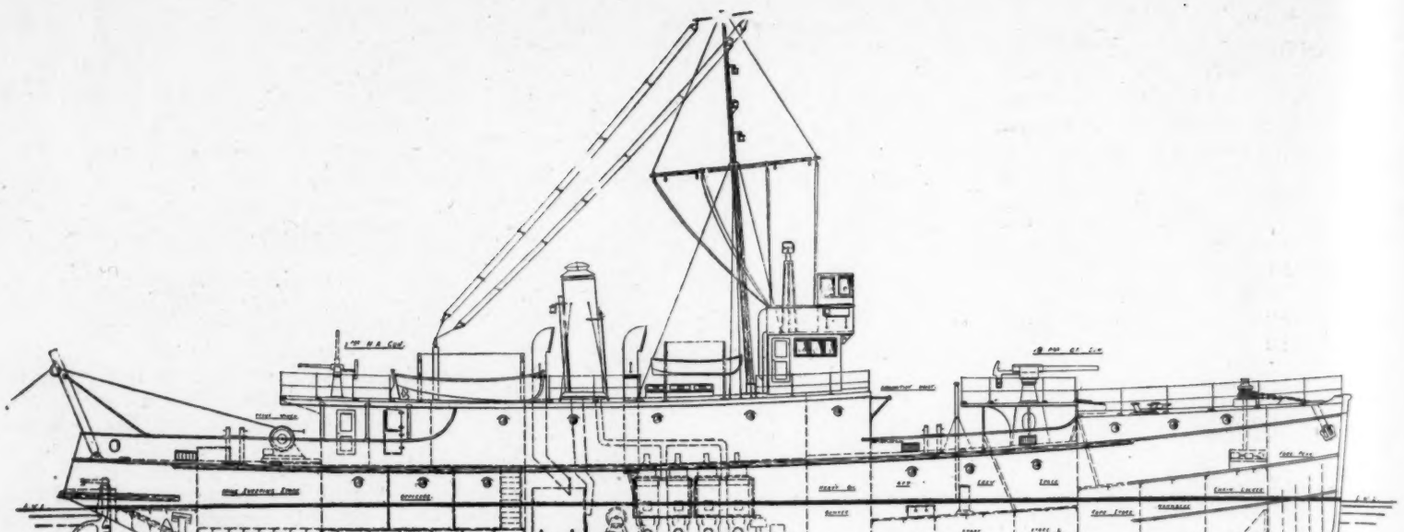
A novel feature of the rig is the absence of the foretopsail (although shown on the drawings) which was not carried when racing to save measurement. For this reason the yacht can cruise and race with a much smaller crew than otherwise and was run by seven men all told including two below deck.

An English Mine Sweeper

We are indebted to *Motor Ship and Motor Boat*, London, England, for the drawings of a motor mine sweeper. This craft measures 140 feet in length by 24 feet in width with a draft of 10 feet. She is, undoubtedly, of considerable interest at the present time, being of such design as to serve both as a patrol boat and mine sweeper. The entire construction is of steel and especial consideration has been given to the question of numerous watertight bulkheads. There are ten of these in the craft, the lower portions of four of them being made oil tight, so forming auxiliary fuel tanks. Under the fo'c'sle and main deck there is room for the crew, while the officers' quarters are placed aft. They consist of separate cabins for the first mate, second mate, commander, engineer and third mate. The officers' mess room is arranged on the main deck with adjoining galley, pantry and lavatories. The power plant consists of two 500 H. P. heavy oil engines of the British Kromhout type, turning twin screws. All the auxiliary machinery is steam driven, the power being had from an oil burning boiler arranged at the after end of the engine room. The main engine and lighting set exhausts are led into the atmosphere through the funnel which also takes the auxiliary boiler flue. The main fuel supply is carried in a cross tank just forward of the engine room and of sufficient capacity to give the craft a wide cruising radius.

The armament consists of an 18-pounder quick firing gun mounted forward and a 3-pounder high altitude gun at the after





end of the bridge deck. The magazine is situated forward of the fuel tank, being easily accessible from the forward gun position, there being also a derrick fitted to expedite the supply of ammunition. Gallows for mine sweeping are fitted aft and a powerful trawl winch provided for working the gears. There is a chart house forward on the bridge deck surmounted by a bridge having a wind shelter for protection of the helmsman. There is also mounted on the bridge a powerful searchlight.

The vessel carries two motor launches and two dinghies. A light military mast carries signal lights and wireless antennæ. The vessel has all the earmarks of the serviceable and able auxiliary it is. All the good points of the trawler with the refinements of the larger motor boat are here, making a type of craft that is at present doing good work about the waters of the British Islands.

Fastenings and Their Various Uses

The boats of antiquity had wooden dowels of hard wood for fastenings. They held in place the various parts of keel and framing and also secured the planking, and to this day similar fastenings are used in heavy wooden construction. They are turned from locust, a hard, tough wood, and called trenals, spelled treenails. If one's observation is keen, the eyes will disclose along the heavy guard rails, waterways, even of the newest Hudson River Ferry boats, rows of these fastenings some two inches in diameter, criss-crossed and staggered every two feet or so apart. They have great holding power and have the advantage of lasting as long as the timber in the hull's construction. Various craft have been unearthed and raised and among their remains the locust treenails are as stanch and sound as upon the long ago day when a hardy workman with sinewy arm and swinging maul drove them home.

Wooden motor boats of today usually have galvanized iron fastenings in their deadwoods and keels, and these are usually in the shape of long bolts with washers and nuts or a galvanized iron rod is used as a rivet, each end being upset over a galvanized iron clinch ring. The out-board end of the fastening is countersunk and plugged, protecting it to considerable extent from the corrosive action of water. Galvanized iron boat nails secure the heels of the frames to the keel, hold the floors and, used as rivets, make fast the upper ends of the frames and the clamps. For these main structural members, galvanized iron fastenings are best. Iron is inelastic and tough and holds rigid and securely wherever used. These iron main fastenings may all be of large size which, combined with galvanizing, prolongs their life, even under adverse conditions for a term longer than the life of the boat.

Copper boat nails riveted over burrs are without question the best for holding the planking snug against the frames, for they have an uncommon holding power and are not affected by the action of salt or fresh water. Galvanized iron boat nails clinched are second to copper so far as long continued holding power goes, though being small fastenings, in time they corrode and rust away. In order come galvanized screws and brass screws, brass screws being most unreliable as they have a tendency as time fleets to work loose.

Framing and finishing both inside and out require a diversity of fastenings; galvanized nails, both wire and cut are indispensable for holding deck carlins, floor beams, flooring, decks, etc.

Joiner work requires brass screws in many sizes, besides galvanized iron brads and finishing nails of numerous lengths, and each has a particular value and each a particular use.

Take Care of Your Sails

Racing is a strenuous game, and just as any athletic sport taxes the endurance of an athlete, so a yacht race taxes the life of a sail. All yacht owners are not keen racing men, but they can take care of their sails just the same. For instance, there is no excuse for a man's hoisting up his mainsail where there is a reef pennant already rove through the cringles, and letting a bight of this pennant catch under a cleat on the boom

An 18-ft. Aux. Cat Boat

It does a sail-boat lover's heart good to come across the plans of a craft like these shown.

A cat boat, especially if it is an able one having all the ear marks of the sea, is appealing to the boatman. Somehow the very simplicity of the rig and the rugged appearance of the hull makes one feel that here is a craft well worth while, and it seems too bad that within recent years this type of boat has not been used to as wide an extent as formerly, for the rig has advantages that far outweigh some of the features that are objectionable.

The plans of the little craft shown here are from the office of Cox & Stevens, of New York. Her over-all length is 18 feet, her width 8 feet 6 inches, and her draft 1 foot 9 inches. She is fitted with a 4 H. P. Mianus motor, which is capable of driving her at a fair rate of speed in calm weather and for working in and out of harbors. The motor is covered with a watertight housing, thus keeping it quite out of sight.

Her construction is of the substantial kind that usually is found in boats of this type. She carries some inside ballast but her sail carrying ability lies principally upon her wide bilges.

There is a small cabin forward within which there is room for a bunk or two and for storing away the dunnage that always collects aboard a boat. For some purposes the cat rigged boat cannot be beaten, and the man who owns one, or ever has, usually likes the rig.

Stretch the Sail before fitting Eyes on the Boom

The screw eyes should not be put in a new boom until the last thing—not until the sail has been stretched along on the foot and the spots for each marked. Beginning midway between the grommets near the mast, the screw eyes should be placed farther apart than the grommets are by about what the stretch will be when the sail has been pulled out as far as it will ultimately go.

A 30-Foot 35-Miler

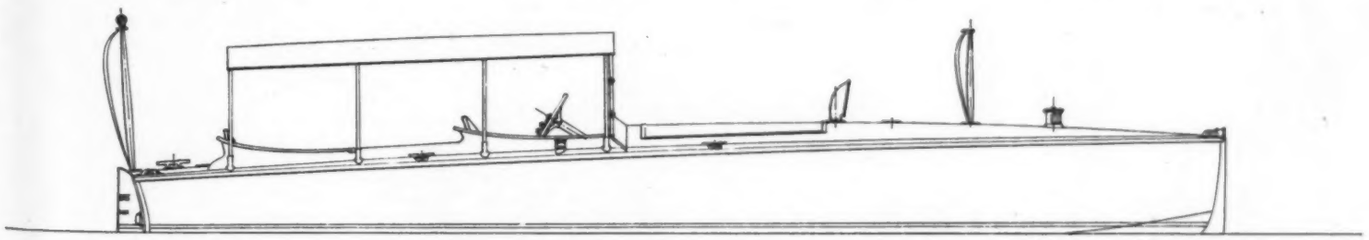
The latest design from the office of A. W. Crouch is a 30-ft. by 6-ft. mahogany V-bottom runabout with a guaranteed speed of 35 miles an hour. A boat of this type is now being built for Mr. H. B. Greening, of Toronto, and another is under construction for Mr. Alfred Rogers of Toronto. Mr. Greening's boat will be propelled by a Model R 5½ inch by 6¾ inch Sterling motor of 135 horse power and Mr. Rogers' by a Model F 6-cylinder Sterling. Both motors have shown excellent speeds in boats of Mr. Crouch's design and in every case the boats have exceeded the guaranteed speed by several miles. The two boats operating as a team are calculated to be the summer champions of Toronto.

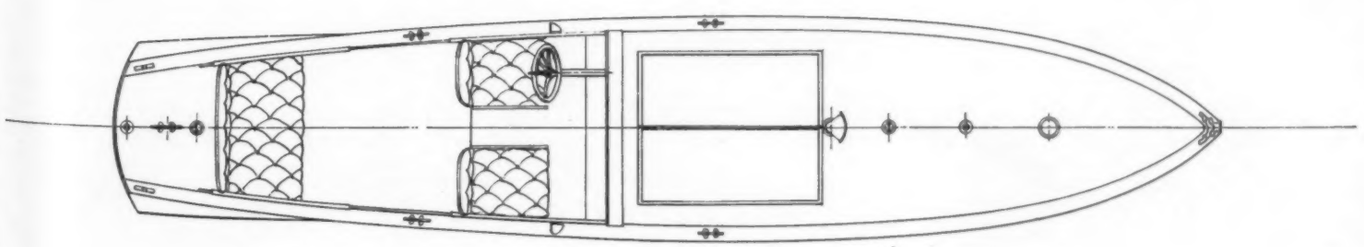
The power plant of each boat is located practically amidships and is well protected under hinged hatches that set flush with the deck. Fitted with electric motor starters and having every control at the wheel, craft of this kind are more easily handled than an automobile and afford the finest kind of sport for the man who craves action. As the cockpit is protected by a windshield and awning those aboard are kept dry even in bad weather. There is ample seating room for five and with the addition of several small camp stools even seven persons might in a pinch be carried.

The construction of these boats calls for white oak frames and keel, yellow pine clamps and stringers and oak engine beds. The planking is of mahogany laid in narrow widths and all seams are battened, all of which follows the best practice for small boat building.

Slack up on the Peak and Clew

When you come to anchor after a day's sailing, it is good for the sail to slack upon the peak and clew, as it allows the sail to come back after the stretching it has received; and as the night dew comes on, the sail, by being unlashed, can come and go as the canvas gets wet and dries out.





Yachting and Yacht Club News

The Detroit River Yachting Association Dates for August and September, Season of 1917

Saturday, August 4, Detroit Yacht Club, Mid-Summer Regatta.
Saturday, August 11, Delrey Motor Boat Club, Power Boat Regatta.
Saturday, August 18, Detroit Yacht Club, Inter-Club Cat Boat Regatta.
Saturday, September 1, Delrey Motor Boat Club, Power Boat Regatta.
Saturday, September 1 } Country Club, Annual
Monday, September 3 } Regatta.
Saturday, September 8, Detroit Yacht Club, Sweepstakes.
Saturday, September 15, Edison Boat Club, Inter-Club Cat Boat Regatta.

Racing Schedule of the Indian Harbor Yacht Club

Commodore Wm. H. Childs, of the Indian Harbor Yacht Club, has made it known to the members of the club that during the war its policy shall be as follows:

It has been decided to give no open regattas this year, but in order that interest in racing, yachting and motor boating shall be maintained until days of peace come, it seems advisable to hold races only in home waters on every Saturday and Sunday. For the one-design classes of the club they offer as prizes only pennants both for individual races and for the winning yacht of the series. The money usually donated for prize and regatta features will be turned over to the Red Cross and some other live organization which in the opinion of the officers will be most efficient in its distribution.

Columbian Brass Foundry Expands

The Columbian Brass Foundry, Inc., of Freeport, L. I., which for a number of years has been making a specialty of manufacturing propellers for the great fleet of American motor yachts, has merged with the Columbian Bronze Corporation. The business is being conducted under the charter of the Columbian Bronze Corporation, which has assumed all the obligations of the Columbian Brass Foundry, Inc. New capital has been invested and the business will be conducted on a larger scale than ever. The directors and officers are Louis J. Hall, President; Wm. G. Miller, Vice-President; Valentine G. Walters, Treasurer, and Robert A. Patrick, Secretary.

Handicap Yacht Racing Association of Long Island Sound

At a well attended meeting of the Handicap Yacht Racing Association of Long Island Sound, held recently, it was decided to hold a series of races open to all the members of the Class. The first of these series was held on Saturday, July 14th. Geo. P. Granbery, President of the Association, was one of the first at the line with his yacht Anita, which in an unexpected manner last fall won the last race of the Manhasset Bay series. As the fifteen craft entered in the various divisions came to the line there was but a mild breeze blowing from the S. W., and it held mild all the afternoon, excepting for a short time while the boats were in the middle of the Sound and heading for the mark near the Long Island Shore. It was on this run that the yachts had the best wind of the entire trip and they lay pretty well to it as they moved for the fastest and best way to the buoy.

Two of the Larchmont Inter-Club yachts, the Barbara and Sirene, made their first appearances in the Handicap Class race and led the yachts of their division. Wasaka, owned by W. L. Coursen, won the race for the first division. The winners of the classes on allowances being Clare in the second, owned by P. C. Pfeiffer, and Barbara, owned by Cornelius Shields, in the third and fourth divisions which sailed as one class.

This race as well as the series which will follow on succeeding Saturday afternoons was open only to members of the Association. At the present time these number about forty. All yacht owners of Long Island Sound who own craft that are eligible to the Class are asked to join the organization which in addition to creating fine sport for its members is continually doing much toward keeping the sport in a healthy condition.

Interesting Race of One-Design Class at the Baltimore Y. C.

Regardless of the fact that Mr. J. Frank Baldwin, with his craft Mallard, finished second in the third and final duck boat race for the Colonel H. V. Wilcox Trophy at Baltimore recently, by virtue of his victory in the first events gave him a sufficient number of points to make his craft the champion of the Class. A strong easterly wind blew throughout the race kicking up a choppy sea and the skippers of the small craft were put on their mettle to get all possible out of their boats. Vice Commodore A. C. Thompson, of the Baltimore Y. C., has offered a cup to be raced for on a point basis in a series of three races, so it looks as if there will be races among the ducklings every week, as there have been promises from a number of other members to offer cups.

American Model Yacht Club Racing Schedule

The American Model Yacht Club, of Brooklyn, N. Y., has held a number of races so far this season and has also scheduled the following races on August 12th and 26th, and September 3rd. The clubhouse is open throughout the season and yachtsmen cruising that way will be assured of a hearty welcome at all times.

The Passing of the Sea Fox

The Sea Fox, formerly flag ship of the New York Yacht Club, and at that time owned by Dallas V. Pratt, who was commodore, has made her last cruise as a pleasure craft. Since 1888 this vessel has been a picturesque member of the yacht club fleet, and has been a constant visitor all along the coast, especially that of New England. She was built for Commodore A. Cass Canfield, of the Seawanhaka Corinthian Yacht Club and won the Goelet Cup off Newport in her second year.

Sea Fox was built of iron and was practically the last of that type of yacht launched. She was always a striking figure amid the craft that gathered at the races for the American Cup and, as she was a fast, able and seaworthy vessel was always among the leaders whenever she sailed. Her last cruise with the New York Yacht Club fleet was in 1916. Although it seems a pity for a vessel of this kind that has always had the reputation of being the smartest dressed and most tastefully furnished of American yachts to sink to the level of a hard working coal barge, it speaks volumes for the staunchness of her build that after so many years she is fit for this arduous work.

Star Class Race at Port Washington

Eight of the Star Class boats competed in an inter-club race on July 4th, at Port Washington, L. I. Four of the boats flew the colors of the Port Washington Yacht Club, while the last four were owned by members of the Manhasset Bay Yacht Club. The event was won by Charles E. Hyde's Hydra, which was the champion of the class last season. The boats entered were Hydra, Chas. E. Hyde; Little Bear, Allan Walker; Veta, Geo. W. Elder; Altair, Willis and Stannard; Little Dipper, Geo. A. Corry; Banshee, N. Edgerton; Banshee II, N. Edgerton and Canis Minor, Adler & O'Brien.

The Contest for the Leland Corinthian Challenge Cup

Five of the Fish Class raced for the Leland Corinthian Challenge Cup at Oyster Bay on July 4th. The course was off the Seawanhaka Corinthian Y. C. anchorage and though the wind was S. W. and light, the contest was an interesting one. Barracuda, owned by deForest Hicks, was the winning boat. Among other craft entered were the following: Pompano, W. H. Appleton; Blue Fish, H. C. Smith; Skate, Good & Smith; and Manatee A. Strauss.

A Life Saving Suit That Is of Interest to Yachtsmen

With an Evinrude motor and an Ever-Warm Safety-Suit it almost seems possible that a man might go on an extended cruise. For anyone wearing one of these suits is kept perfectly dry and there is room aboard to carry liquid food. It seems a strange thing that men have been content so long with the old-fashioned cork life preserver. One of these is equal to keeping a man's head above the water, but unless one is fortunate enough to know how to get into the thing and keep it about the right part of his anatomy, while he is in the water, they are, at best, only able to keep one afloat, and in wintry weather, or even in the summer time, if the water is cold keeping afloat becomes a keen hardship.

Whoever conceived the idea of building a life saving suit like the Ever-Warm Safety-Suit has done something well worth while doing, and anyone so unfortunate as to have his vessel shipwrecked or capsized or submarined is a fortunate man to be able to don one and paddle around waiting for a rescue party and this without even getting wet. Recently, the International Life Suit Cor. was organized under the laws of the State of New York, and it now has the sole selling and distributing rights in the United States and Canada and throughout the world for the Ever-Warm Safety-Suit, to meet the tremendous demand developing in this country and abroad and coming from every field of marine activity for this real life preserver.

Yachtsmen, steamship men, hospital units, engineer corps, army officers, government officials and naval men, passengers on practically every trans-Atlantic liner realize the value of these suits and many of them are being carried as a safety first precaution through the U boat zones. For this reason the chief problem has become one of supplying these suits and for this the new company has been formed.

The officers of the International Life Suit Cor. are James A. Watt, President; Louis S. Bruenn, Vice President and Treasurer, Oscar A. Youngren, Secretary, and its office is at 11 Broadway. Telephone, Bowling Green 8609.

Independence Day at Toledo Yacht Club

It would indeed be hard to find anywhere in this country, a more patriotic group of men than that composed by the membership of the Toledo Yacht Club. Its many members have been active in every campaign in Toledo to raise funds for any cause needed by the government to help win the war. When it came to the proper and fitting celebration of the Fourth of July, a great deal of thought was given as to the kind of a program best adapted to bring forth an expression of patriotic fervor and it was finally decided that no more fitting program could be found than a regular old fashioned Fourth of July celebration, the kind that has stirred our hearts from our boyhood's earliest recollection. Of late years our Fourth of July has been changed from a day when we burnt our fingers, made all the noise we could, literally blasted and yelled our triumph in the cause of Liberty, into a kind of a "safety-first-old-maids-sewing-circle-affair."

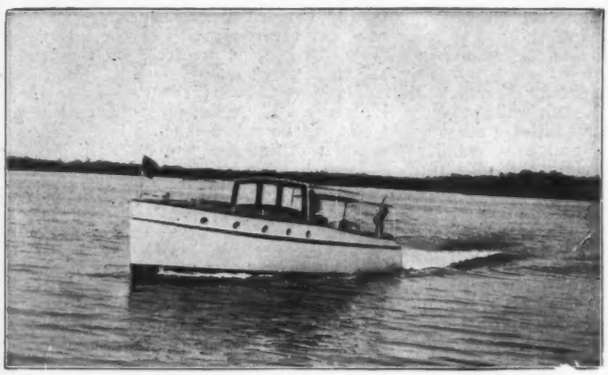
You may be assured that any sentiment which cannot be expressed soon dies and, failing of expression, hemmed about by kindly old maids and over cautious city officials who play so safe on one day in the year and don't give a tinker's damn for it the rest of the three hundred and sixty-four, patriotism has almost been nursed to death and America is producing a lot of gun shy kids who are told to cheer if they like but not too loudly and to shun fireworks as they would a plague.

You cannot express patriotism by spending the day going to a picnic or in fishing or motoring and if the statisticians who figured out the number of deaths from fireworks on a rip roaring old Fourth, would turn their attention to the increase in accidents from swimming, motoring, and other causes since the advent of the so called "sane" Fourth, they would find that they have not played so safe after all.

TWIN SCREW INSTALLATIONS

FOR SMALL CRUISERS AND RUNABOUTS

A GRAY twin-screw installation gives you better results for less money than a single engine of equal horsepower. By manufacturing Gray motors in quantities from twenty-five to fifty times greater than any marine engine company builds fifty horsepower machines, we can furnish two motors of the highest quality at a lower price than you can secure one good 50 horsepower engine.



Twin-screw 36′ Cruiser powered with a pair of Gray Model D 20-24 H. P. Motors, Speed, 13 M. P. H.

Exhaustive tests have proved conclusively that the twin-screw outfit consumes less gasoline per mile than the single-screw installation. You are saving money every hour with a pair of Model "D's."

Two separate units give you twice the engine reliability and exactly doubles your margin of safety.

A twin-screw power plant increases your speed range and is twice as flexible as a single engine.

You will find that twin-screw installation takes up less fore-and-aft room in your boat and provides a convenient center aisle.

Twin-screw outfits give you less vibration and greater speed.

Twin-screw outfits mean a saving in first cost, in operation, in reliability, in convenience, and in flexibility.

A 30-foot runabout whose speed was increased by installing two four-cylinder Gray Motors instead of a single engine.

This has been the experience of the Gray Motor Co., world's largest exclusive manufacturers of two and four-cycle marine and stationary engines.

A full report of our twin-screw experiments will be sent upon your request.

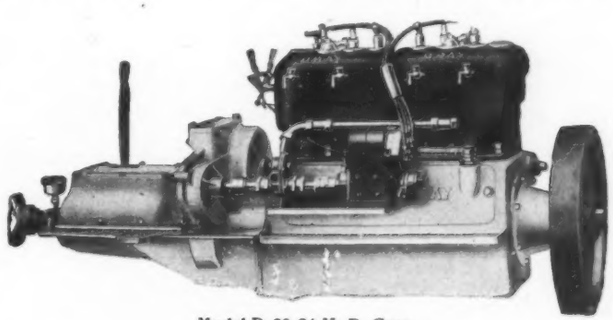
We are prepared to supply you immediately with any Model Gray engine either singly or in pairs for twin-screw work.

Model D—Four-Cycle Four Cylinders
3¾″ x 4½″ 20-24 H. P.

Model F—Four-Cycle Four Cylinders
3″ x 4″ 12-15 H. P.

Model D—Four-Cycle Two Cylinders
3¾″ x 4½″ 10-12 H. P.

Model U—Two-Cycle Two Cylinders
4¼″ x 4¼″ 11 H. P.



Model D 20-24 H. P. Gray

Model U—Two-Cycle Two Cylinders
3½″ x 3½″ 6 H. P.

Model U—Two-Cycle One Cylinder
4¼″ x 4¼″ 5½ H. P.

Model U—Two-Cycle One Cylinder
3½″ x 3½″ 3 H. P.

PRICES $74.00 TO $500.00

Send for our Valuable Booklet "The True Meaning of Service." Our complete engine catalog and the Gray Boat Builders Catalog go with it. All free. All worth while.

GRAY MOTOR COMPANY 858 OAKLAND AVE., DETROIT, MICH.

Of Interest to the Skipper

An Interesting Sterling Book

We have recently received from the Sterling Engine Company, Buffalo, N. Y., a mighty interesting book called The Model F Instruction Book. Within its pages there is a complete story of the Sterling Model F motors, which are built in 4, 6 and 8 cylinder unit power plants, their design and construction being identical throughout excepting as to overall lengths. This book goes into the subject of installing gasolene motors in a thorough manner, beginning with the foundation timbers and going through all of the stages necessary in order to complete a workmanlike installation. It tells about the proper gasolene system to use, what and what not to do with the tank location, it goes into the ignition and electrical equipment of Sterling motors especially thoroughly, the lubricating system and reverse gear. Neither does the book forget to mention the valves. It tells about the operation of a motor and warns the owner of a number of things not to do. From cover to cover it is full of interesting things and without question will be found of much interest to motor boat owners in general. The Sterling Engine Co. will be glad to send a copy of this book to any of YACHTING's readers.

Some Interesting Developments in the Life of the Ever-Warm Safety-Suit

The Ever-Warm Safety-Suit, the wonderful and real life preserver that actually will save human life in case of disaster or trouble on water, is the last word in the shipping world. People on all boats crossing the ocean are talking about this very necessary safeguard to human life. It is indispensable because it:

Makes travel by water perfectly safe under all conditions.

Takes less than a minute to put on. Keeps the body warm; it is a human thermos bottle.

Keeps the head far above the water whether the wearer be in a conscious or unconscious condition.

It is a one-piece watertight garment completely enclosing the body.

It is light, easy to carry, and durable. It is the best and only insurance policy for a water traveler.

In the suit—You Cannot Drown. You Cannot Chill.

Since navigation began there was hardly anything done to save human life in case of accident on the water.

Some of the latest developments in the life of the Ever-Warm Safety-Suits are that whole hospital units crossing the Atlantic are being equipped with these suits to assure protection.

Owners of patrol squadron boats and submarine chasers are eager to equip their boats with these suits, and the manufacturers look forward to supplying them to thousands of boat owners in the immediate future.

Some of the suits have found their way on such boats as the U. S. S. Mayflower, and yachts like that of Mr. Morgan, the Corsair; and that of Mr. Cromwell, the step-son of General Stotesbury.

The steamship companies—the International Mercantile Marine Company and others—are advising their passengers to provide for the additional protection the Ever-Warm Safety-Suit offers, and a very large percentage of the ocean travelers who are leaving these shores are equipped with this real life preserver.

The War Department in Washington is also advising those who have to travel on water to provide themselves with this additional protection.

Mr. John R. Walker, the Federal Lumber Commissioner, made a test of the suit in the Mississippi River at New Orleans in the presence of notables, both of official and private life.

The Navy Department has fully tested the suits for official purposes and a gratifying report as to the merits and practicability of the suit is on file at Washington and Philadelphia.

Mr. C. G. Wade, General-Agent for New South Wales, made a personal test of the suit while in New York in icy water last February, and a gratifying letter testifying to the merits and practicability of the suit is in our possession. Other notable and distinguished people throughout the country, including the Vanderbilts, Morgans, etc., have become great friends of this safety device.

Mr. Gerard, while Ambassador to Germany, had an Ever-Warm Safety-Suit along on both his trips, to and from Germany, and we also have his letter in our office, testifying to the comfort of mind possession of the suit afforded him. The U. S. Shipping Board is also very earnestly considering the equipping of their boats with this real life preserver.

New Home of the Gray Motor Company

The rapid and constant increase in business which the Gray Motor Company of Detroit, Michigan, have enjoyed since the very beginning now compels this company to seek a new and larger home for the manufacture of Gray Marine engines.

Throughout the world the Gray name is known as a Marine engine of great reliability and efficiency, placed upon the market at a price within the reach of all.

At first the company manufactured two-cycle motors exclusively, but when the time was ripe the four-cycle field was invaded with instant success so now the demand for the Model "F" and Model "D" four-cycle motors has made it difficult for the company to keep up with the demand.

At the same time the Gray two-cycle line has been improved, and with the Model "U" manufactured in four sizes of from 3 to 11 H. P., in one and two-cylinder units, the company offer a most reliable and high grade two-cycle machine.

During the past year the sale of two-cycle motors exceeded that of all former years, in spite of the fact that the four-cycle business had obtained greatly increased expansion.

Last winter the Gray Motor Company purchased a new factory site of six and one-half acres most advantageously located upon the Detroit Terminal Railway, just north of Mack Avenue and across the tracks from the Motor Product Company (formerly the Lozier Motor Company's plant) and the Michigan Stamping Company's new plant. At the time of purchase this property was outside the Detroit city limits; since then it has been taken into the city.

When the preliminary surveys were made, careful thought was taken, not only for the immediate needs in the production of the company, but for the expansion, as predicted by the growth during the past few years.

The immediate plans call for three separate buildings. These are now under construction. A large and complete machine shop is now nearing completion and the company will install new machinery in this building as soon as it is completed, as well as some of the old machinery which is now located at the present plant.

The machine shop building is 256 feet long by 64 feet wide, is of brick construction with steel sash, and is one story high.

Conveniently situated near by is the stock assembly and shipping building. This is 64 feet south of the machine shop building, is 448 feet long by 64 feet wide.

The mill assembly room is also one story, and of brick and steel construction with steel sash as is the machine shop. The first 112 feet of this building, however, is to be two stories in height, provision here being made for the offices and drafting-room on the second floor.

The third building now under construction will house the heating plant, the rough grinding department, heat-treating and blacksmith department, as well as affording a rough-casting storage. This building is 130 feet long by 112 feet in width.

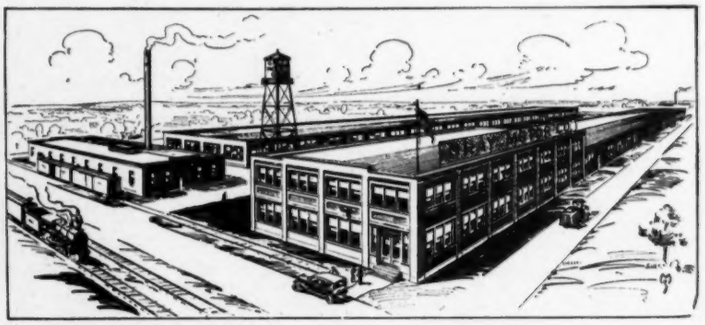
All the buildings are thoroughly sprinkled from a fifty thousand gallon tower. The floor of the machine shop is wood and that of the assembly building is constructed of concrete.

The new plant as now being constructed and equipped will have a capacity of fifty engines per day, while comparatively slight addition to these buildings and a little additional machinery will readily double the production.

The Gray Motor Company commenced moving into their new plant in July and by the middle of August some of the machine departments will be in full operation in the new plant. It is expected that the entire moving will be completed during the month of August, and that on and after September first operation will be entirely in the new building.

Sold and Chartered Through the Burgess Agency

The Hollis Burgess Yacht Agency has sold the following yachts: Auxiliary sloop, Acushla II, owned by Bruce Wetmore and Hanson M. Savage



THE NEW GRAY MOTOR FACTORY IN DETROIT IS ONE OF THE MOST UP-TO-DATE PLANTS OF ITS KIND EVER BUILT

Submarine Chasers—

The unprecedented popularity of the *Speedway* 52-foot cruiser is evidenced by the fact that six of these boats, built for private owners, have been accepted by the Navy Department for Scout Patrol Service.

You incur no obligations by requesting that specifications be sent to you, describing the six different types of "chasers" which have been designed and developed. The largest of this class is 130 feet and the greatest speed obtainable is approximately 30 miles per hour.

Early deliveries are still possible

Gas Engine & Power Company
and
Chas. L. Seabury & Company
Consolidated

Dept. D Morris Heights New York City

Speedway

Out of the Mist

(Continued from page 71)

acres about the shipyards where she was built predicted dire disaster for her. At her launching, at which she was christened by Prince Albert, the bottle of wine thrown at her bow fell short several feet. It was also found that she was too big to float out of the excavated dock in which she had been built, and there were all kinds of delays before she was finally floated. Her construction was unusually heavy and in every way she was a rugged, able craft. With an overall length of 320 feet and beam 51 feet and a total depth about 31 feet, her tonnage was 3,500 tons. She had engines of about 1,000 horse power. It is interesting to note in connection with her machinery that the propeller shaft was not driven direct as in present day practice but was driven through the medium of four endless chains; in other words, the propeller shaft was geared up in the proportion of about one to three. Originally she had a six bladed propeller and it was not until she met with an accident and so knocked off two of these that her owners learned she was much faster without them. Subsequently a propeller was built for her having four blades. The Great Britain's average speed from the mouth of the Mersey to New York was 9½ knots an hour although her engines were worked only at about 600 horse power. Her rig was as unique as her hull, for she had six masts of which only the second carried square sails, the others being fore and aft rigged. Five of her masts were steppped on turntables on deck and might be lowered at sea thus offering less resistance in going against a head wind. At the time of her launching she was the finest and largest steamship ever built and although she contrasted unfavorably in appearance with the tall graceful masted American sailing ships she was a success in every way.

The Great Britain after having passed out of the trans-Atlantic trade plied between Australia and England for a number of years and, after a varied career, is now ending her days as a coal barge.

After the launching of the Great Britain there was great activity in iron steamship building; the low powered, slow turning engines gave place to a higher speed type and finally, through the efforts of John Elder, multiple expansion engines were developed, then twin screws were fitted in steamships and the era of supremacy of sails was a thing of the past.

Those were the days when shipbuilding was at its zenith. Fares were high and ship owning profitable. Subsidies were not paid excepting for lines like the Cunard and one or two others. Steam vessels brought home handsome profits to their owners, and the great fleet of steam freighters that is now England's pride and saviour owes much to the men who started steam vessels plying the seven seas.

The day of the iron steamship ended in about 1880 and up to that time great progress had been made in the design and build of ocean going vessels. As each new ship was built there was a gradual increase in length, width and displacement; also the horse power and speed were correspondingly increased, and the sureness of steamship travel, coupled with the commodious cabins for passengers, put them in a class by themselves as ocean passenger carriers.

Iron shipbuilding culminated in the construction of the Great Eastern. She was the wonder of her age, and although the general public has always looked upon her as a complete failure (as indeed she was as a commercial proposition) to shipbuilders and designers she was an inspiration, for she proved without question the feasibility of building an enormous ship that would be equal to making long ocean voyages with a maximum of comfort for those aboard. The lines of this vessel were drawn by J. Scott Russel, a famous engineer of that time and the details of the ship's construction were conceived by I. K. Brunel. The public during the building of this enormous ship was wildly enthusiastic and every item of news as to its building was eagerly sought and the newspapers vied with one another in the extravagance of their assertions.

Strange to relate she had both paddle wheels and twin screw propellers and it was expected that her speed with this would be somewhat over 25 miles an hour; through her great size it was thought that her performance at sea would be splendid and that she would sail regardless of weather conditions which proved to be true. It may not be amiss to attach a clipping from one

(Continued on page 93)

of Boston, to C. D. Bardon of New York. 60-ft. motor patrol boat, Cobra, owned by Joshua Craen of Westwood, Mass., to a Harvard and Yale University syndicate for patrol duty in the Second Naval District. 55-ft. motor patrol boat, Fearless, owned by John H. Procter of Boston, to Howard B. Daniels of Concord, Mass., for patrol duty in the second Naval District. 46-ft. waterline auxiliary yawl, Polly, owned by Fulton J. Redman of Ellsworth, Maine, to Henry Hall of Philadelphia. 46-ft. fast patrol cruiser, Scimitar IV, owned by H. Ernest Rogers of Brookline, Mass., to Joshua Crane of Westwood, Mass. 45-ft. auxiliary knockabout, Venture, owned by Howard S. Hart of New Britain, Conn., to Mrs. E. M. Treadwell of New Bedford, Mass. 33-ft. waterline auxiliary yawl, Idler, owned by Major George Osgood of Cohasset, Mass., to Charles H. Maginn of East Boston. 35-ft. waterline auxiliary sloop, Lady Mary, owned by Philip L. Saltonstall of Chestnut Hill, Mass., to A. M. Somerly of Brookline, Mass. 39-ft. motor boat, Shadow, owned by Andrew J. Peters, former Assistant Secretary of the Treasury, to Frederick S. Mosely of Newburyport, Mass. Champion 22-ft. waterline sloop, Tyro, owned by Hollis Burgess of Brookline, to Egbert Moxham of New York, for racing on Long Island Sound. 40-ft. waterline auxiliary schooner yacht, Diablesse, owned by Charles N. Robinson of Hartford, Conn., to the *San Francisco Examiner*. She will proceed from Boston to San Francisco through the Panama Canal. 21-ft. raceabout, Idol, owned by A. H. Van Pelt and Frank R. Kimball of Boston, to C. Marks, of New York. 30-ft. waterline auxiliary schooner, Golden Parrot, owned by Augustus H. Fisk of Providence, R. I., to Edward Reynolds, M. D., of Boston. 25-ft. waterline sloop, Mistral, owned by Richard E. Morrison of Belmont, Mass., to A. Henry of New York. 40-ft. waterline schooner Elemah, owned by Roland C. Nickerson of Brewster, Mass., to Fulton J. Redman of Ellsworth, Maine. 22-ft. waterline sloop, Warrior, owned by Harry J. Bloomfield of Winthrop, Mass., to F. J. Platt of Scranton, Pa. 40-ft. motor boat, Onawa, owned by C. W. Kimball of Medford, Mass., to Louis C. Newhall of Boston. 50-ft. motor boat, Savallo, owned by Walter E. Knight of Boston, to James N. Henry of Providence, R. I. 30-ft. waterline auxiliary yawl, Ugly Duck, owned by Paul C. Nicholson of Providence, R. I. 18-ft. waterline sloop, Shrimp, owned by Alexander Kendall of Cambridge, Mass., to Gleason Wood of Waltham, Mass. 25-ft. motor boat, Gray Duck, owned by Rev. Endicott Peabody of Groton, Mass., to William S. Jewett of Marblehead, Mass. 40-ft. motor boat, Drabmol, owned by M. H. Lombard of Boston, to the Howard Lumber Company of Panama. 15-ft. racing sloop, Hanky Pank, owned by H. Ellsworth Hicks of Hingham, Mass., to Lester H. Monks of New York for use on Belgrade Lake, Maine.

The New Duesenberg Factory

The new factory of the Duesenberg Motors Corporation in which will be built their airplane and automobile motors, has been under construction since the second week in May and the first section is to be completed and ready for occupancy in the third week in August.

Nine and one-half acres of ground have been obtained by the corporation. The first section here illustrated, which is now under construction, is 500 feet long by 180 feet wide. As soon as this first section is completed, a second addition of exactly the same size and formation will be built.

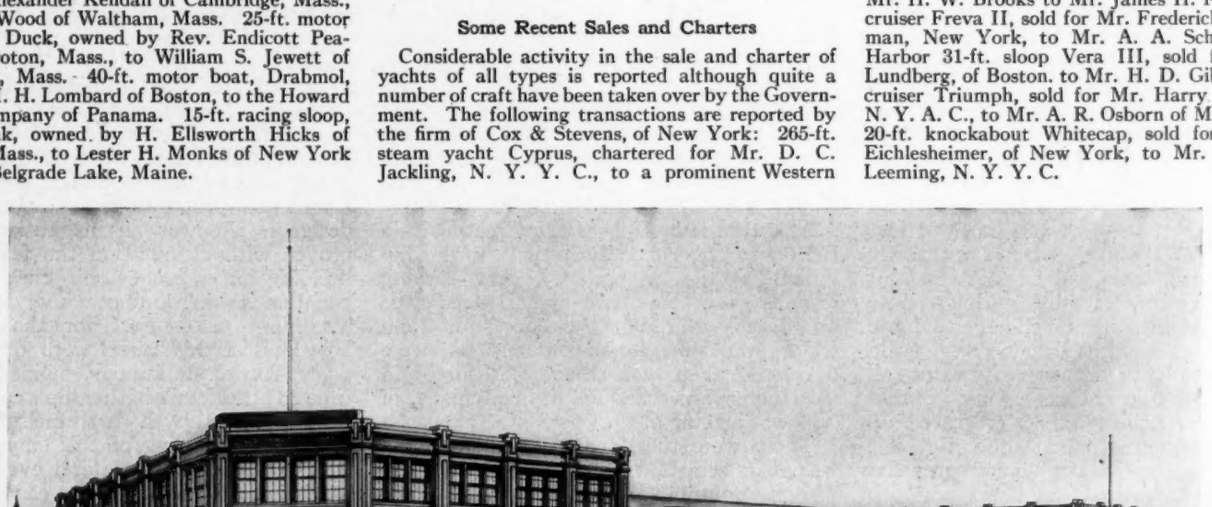
The new plant is within two minutes' walk from the North Elizabeth station, directly on the Pennsylvania Railroad and everybody going to and from Philadelphia, Washington, etc., will see the big new plant and the huge electric sign now being erected. The building is of the latest brick, steel and glass construction with wood block floors to make it easier on the workmen's feet. The forward part of the building is of two stories, the upper half of which will be used for the general office of the corporation, although the sales organization will continue to maintain its headquarters at 120 Broadway, New York City. The farther end of the building is also of two stories. As this will be used as a test room a large travelling crane will be installed for quickly and efficiently transporting the motors from the end of the assembly aisles to the testing blocks. The plant proper is a single story building with saw-tooth roof construction.

The Duesenberg Motors Corporation have set out to make this the most complete and efficient motor manufacturing plant in the country today. Modern systems of progressive manufacture will be adopted and it is assured that big production will be possible within a very short time after actual occupation of the building. The necessary machinery for this plant has already been purchased and is now in possession of the corporation, waiting to be installed on the floor of the new factory.

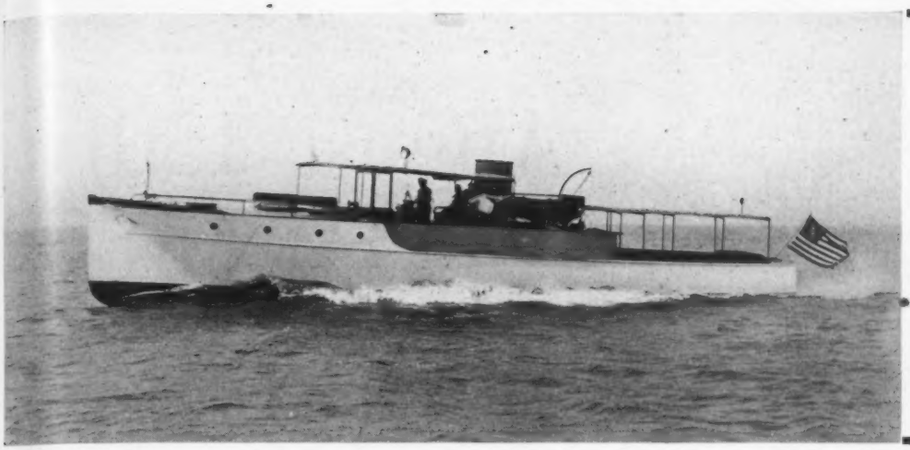
The immediate work of this new factory will be to turn out a quantity of the four-cylinder sixteen-valve Duesenberg airplane motors that have gained such a fine reputation in actual service during the past few months.

Some Recent Sales and Charters

Considerable activity in the sale and charter of yachts of all types is reported although quite a number of craft have been taken over by the Government. The following transactions are reported by the firm of Cox & Stevens, of New York: 265-ft. steam yacht Cyprus, chartered for Mr. D. C. Jackling, N. Y. Y. C., to a prominent Western yachtsman for a cruise to the West Indies. 155-ft. fast steam yacht Irene, sold for Mr. Alfred P. Lasher, N. Y. Y. C., to Mr. Michael Dreicer. 130-ft. auxiliary schooner yacht Ariadne, sold for Estate of Mr. James Laughlin, Jr., of Pittsburg, to a New York yachtsman. 120-ft. steam yacht Mareva, sold for Mr. Edward Y. Weber, N. Y. Y. C., to Mr. Jose C. Seva. 110-ft. power yacht Vidofner II, sold for Estate of Mr. Richard Patzowsky, of Wilmington, Del., to Mr. John Ringling, of New York. 106-ft. schooner yacht Astra, sold for Estate of Mr. Frederick S. Jones, of Reading, Pa., to Mr. George Bullock and Mr. Charles K. Beekman, of New York. 90-ft. yacht Appy Yee, sold for Mr. A. L. Baker, of Raleigh, N. C., to Mr. Harry H. Raymond, N. Y. Y. C.; name changed to Scotian. 85-ft. power yacht Clorita, sold for Mr. Philip T. Dodge, N. Y. Y. C., to Mr. C. B. Smith, of Chicago. 85-ft. power yacht Scotian, sold for Mr. Harry H. Raymond, N. Y. Y. C., to Mr. Newell W. Tilton, of New York; name changed to Lagoda. 80-ft. power yacht Elmarlu, sold for Mr. James H. Ottley, N. Y. Y. C., to Mr. F. L. Jenckes, of Providence, R. I.; her name has been changed to Tamarack. 85-ft. auxiliary yacht Sonsy, sold for Estate of Mr. Frank M. Carnegie to Mr. F. D. M. Strachan, of Brunswick, Ga. 98-ft. auxiliary schooner Crusader II, sold for Mr. Edwin Palmer, N. Y. Y. C., to the Haitian Constabulary for Coast Patrol Service. 90-ft. power yacht Desire, chartered for Mr. W. H. Brouse to Mr. George W. Bacon and Mr. Frank M. Doubleday for service among the Bahama Islands. 65-ft. power yacht Lurline, sold for Mrs. George C. Campbell, of New York, to Commodore Philip H. Johnson. 67-ft. gasolene cruiser Gladiola, chartered for Mr. Coburn Haskell, of Cleveland, Ohio, to an Eastern man. 65-ft. gasolene houseboat Weona II, chartered for Mr. W. J. Henry, St. Augustine, Fla., to Mr. C. M. Clark, N. Y. Y. C. 55-ft. cruiser Vixen, sold for Mr. Sidney S. Schuyler, New York, to Mr. George R. Dyer of New York. 55-ft. gasolene cruiser Queen Mab, sold for Colonel Maury Nichols to Mr. William Foggitt, of New York. 50-ft. cruiser Corlew, sold for Mr. L. L. Curtiss, Jackson, Tenn., to Mr. H. H. Miller, Brooklyn, N. Y. 45-ft. cruiser Yo-Ho, sold for Mr. A. E. Brion to Dr. George W. Van Benschoten. 37-ft. yawl Transactor, sold for Mr. Frederick B. Stimson to Mr. Ernest F. Hafner. 40-ft. Two Brothers, sold for Mr. H. W. Brooks to Mr. James H. Flinn. 60-ft. cruiser Freva II, sold for Mr. Frederick W. Haberman, New York, to Mr. A. A. Schwartz. Bar Harbor 31-ft. sloop Vera III, sold for Mr. Hj. Lundberg, of Boston. to Mr. H. D. Gibson. 40-ft. cruiser Triumph, sold for Mr. Harry A. Jackson, N. Y. A. C., to Mr. A. R. Osborn of Monroe, N. Y. 20-ft. knockabout Whitecap, sold for Mr. Fred Eichlesheimer, of New York, to Mr. Thomas R. Leeming, N. Y. Y. C.



AT PLAINFIELD, N. J., A MODERN FACTORY IS BEING BUILT FOR THE DUESENBERG MOTORS CORP. IN WHICH WILL BE BUILT AIRPLANE AND AUTOMOBILE MOTORS



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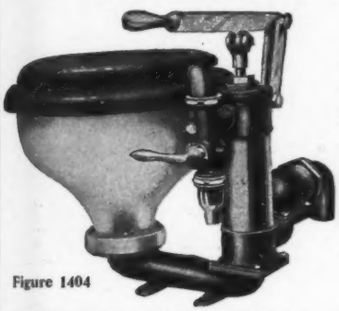

Figure 1404

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Out of the Mist

(Continued from page 91)

of the English newspapers published at the time the Great Eastern was launched.

"It has generally been conceived that the ill-fated steamship President snapped across some Atlantic wave as a match might be snapped between the fingers; the still more gigantic Great Western, Himalaya, Atrato and Persia have, however, since that unfortunate accident, continued to plough their ways in safety through the ocean storms. The Great Britain lay for months among the breakers of the rock-bound coast of Ireland, and yet finally floated off unscathed, to render good service to the British Government as a transport in time of need. The grand experiment of the cyclopean order of naval architecture is, however, in preparation, and shortly to be put to the test. The Great Eastern Steam Navigation Company have for some time been engaged in building an iron ship upon a scale, both as regards absolute dimensions and strength of material, that will at once change all its leviathan predecessors into pigmies.

"The upper deck runs flush and clear from stem to stern for a width of about twenty feet on either side, thus affording two magnificent promenades for the passengers just within the bulwarks. These promenades will be each rather more than the eighth part of a mile long. Four turns up and down either of them would exceed a mile by 256 feet. The vessel when launched will be more than as long again as the steamship Great Britain; it will be nearly three times as long as the line-of-battle ship the Duke of Wellington, and nearly as long again as the Himalaya; eighty-eight feet more would make it as long again as the Persia, at present the longest vessel afloat on the ocean.

"It is calculated that a sharp long wedge of this kind, impelled by the force of nearly 4,000 horses, and extending its length on the water along a distance of nearly 700 feet, will pass through it with the speed of twenty miles an hour. This will be amply sufficient to enable it to make the voyage to India, round the Cape of Good Hope, in thirty days, or to Australia in thirty-three days.

"Once again, how will the winds and the waves affect this leviathan mass, when they chance to be in their surly and uncongenial moods? A connected mass of 27,000 tons is not as easily heaved as a cork or cockle-shell; but the storm winds and the storm waves of the open ocean have a tremendous power. What will they do, then, with this stupendous morsel, when they have it fairly within their clutches? The heaviest hurricane wind blows with a force that would act upon a square foot of resisting surface with a pressure equivalent to a weight of 40 pounds. Such a wind could only heel the leviathan with its full load out of the perpendicular to the extent of six inches even if it struck it quite on the side! The waves of a fresh sea run about 100 feet long. Those of a moderate sea are 300 feet long. Of such the leviathan would take two at once, and would preserve the while almost an even keel. The highest storm waves ever seen on the wide and deep ocean are only 28 feet high from trough to crest, and 600 feet long from trough to trough. Of course, the leviathan would still take two at a time, when the crest of one was near to the bow, and the crest of the other near to the stern. Under the most unfavorable circumstances such waves would not disturb the horizontal equilibrium of the deck line to the extent of more than five degrees. . . . The captain of the leviathan will have a cabin for himself, situated conveniently near the center of his domains, on the mid-deck, and between the huge paddle boxes. But placed here like a spider lurking in the center of its web with outstretched attentive feelers, he will have to use his telescope to see what is going on at the bows and stern; and the old contrivance for issuing orders, the speaking trumpet, will be altogether out of date and valueless in his hands. His voice, even with this aid, would hardly be heard half-way to the stern. He will have to signal his directions to his officers by semaphore arms by day and by colored lamps by night. He will also have electric telegraphs ramifying to the engine rooms, and to other places to which it may

(Continued on page 100)

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Herbert L. Stone, the editor of YACHTING, is now on active duty as Lieutenant in the U. S. Naval Reserve Force. His experience as a yachtsman and navigator makes him invaluable to his country at this time. He will continue, however, to represent YACHTING editorially. His monthly letter to YACHTING readers will have much value to all yachtsmen and boat owners in general.

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For Sale at a Sacrifice: An Auxiliary Yawl, 45 ft. O. A. Waterline 36 ft. Beam 13 ft. New engine installed under cockpit floor at an expense of five hundred dollars, has only run fifty hours since installation and from 20 to 24 H.P. Sleeps two in forecastle, four or eight in cabin; has galley, toilet room, built-in icebox, one rowboat. Boat is absolutely sound; jib, staysail and jigger in good condition, mainsail no good. Is well found and will sell her as she is for $1000 cash. My only reason for selling is I have purchased a larger boat. Apply for further information to JOHN MILNES CO., Bank Building, Port Richmond.

FOR SALE
Thompson Featherine Propeller
5 In. Dia. - Bronze - Heavily Built - New - Price Reasonable
A-B c/o YACHTING, 141 W. 36th St., N. Y.

In the Wake of Cabrillo

(Continued from page 66)

had to, as we were expecting our sails, or word from the sailmaker. The visiting niece had nothing to do with it, of course,—Ha!—but I started. Nearly all of the people of the lighthouse were on the beach, and when they saw me coming two of the men signaled me to try a spot further down. Later I found out why. At two different times mariners in distress had been drowned trying to land through the surf in that spot.

The surf was tremendous, and for half an hour I tried for an opening. The combers were breaking one hundred and fifty yards from shore, and right over our anchor. At last they signaled me to try for it. When I had nearly made a point where I would have been safe, a whale of a roller sneaked up on me. I rowed to meet him as fast as I could, but he curled right over me. His falling crest struck the stern transom before the dome of the breaker hit me. For an instant I was in a watery cave, then I was in the water. It struck so hard that the skiff's stern struck the bottom. When I came up I swam to the submerged skiff, and held on. The next roller swept us in. The two men waded out to meet me, and dragged the skiff out while I got my breath. The boat wasn't hurt in the least, and an hour later the oars came ashore.

No one was ever wetter than I was, so I declined to join in the festivities at once, pleading that I must go to the station first. On reaching the railroad track, secure in the knowledge that in that vast expanse of desolation my privacy was complete, I took off my pants and blouse, and with one in each hand tacked up the track into the gale. Even Cabrillo, in all his Spanish pomp and splendor, never advanced for a call of state upon an aborigine chieftain as I advanced upon that lonely shack of a telegraph office. Carey thought I was heading for an asylum at first, but loaned me some clothes pins, and I hung my raiment to dry in the sun and wind, and took myself into the shelter of the station. Carey had no news for me. A train came along, and I had to hide, but in half an hour my clothes were dry.

Joining the group on the beach I received a jollying that warmed me all over. Under the overhanging cliffs there was no wind at all, and we gaily dispatched the mussels. The men seemed worried, and finally told me that we would have to put to sea, as the wind was shifting, and by midnight the yacht would be in the breakers. Promising to have Carey wire the sailmaker to ship our canvas to us at Monterey, two of the men helped me launch the skiff. I never could have gotten through the surf without their help. They waded in to their waists to start me right. Twice I thought the skiff would be thrown over in a back summersault, but finally reached the yacht. Again I was as wet as anyone can get. When I reported, the Skipper decided to leave as soon as possible.

(To be concluded)

New Sport for Old Water Men

(Concluded from page 75)

The change from land to water equipment, and vice versa, can be made within one hour and offers a particular inducement to the man with a large estate who wants to be able to fly both over his water possessions and land possessions. The average seaplane, too, is hardly more expensive than a yacht or good sized motor boat, for they can be purchased for from $12,000 to $25,000. These prices allow the building of a machine that will seat up to twelve passengers in the cabin.

When one begins to realize the tremendous development that aviation has shown, the imagination is staggered by the possibilities of its future development. Is it beyond conception to think of a machine capable of flying in the air, running on land, cruising on water and submersing?

We are now witnessing a tremendous development in one of the greatest industries to which the World's genius has ever given birth. At fairs, boat races, automobile races and celebrations of all kinds the aeroplane is coming more into popular use; the wealthy sportsman has made it his hobby; the business man has turned to it for his commercial gain in the ordinary pursuit of his business; and, with it all, you and I shall see man turn, as England the great Naval Power is now doing, from the command of the sea to the command of the air.

Out of the Mist

(Continued from page 93)

be necessary that his instructions should be instantaneously communicated. The compasses will be placed aloft on a staging reared forty feet above the deck, to remove them from disturbing influences inherent in the vast masses of iron below; and it is proposed that strong shadows of the needles shall be cast from a tube, so that the steersman may at once watch these shadows, and so follow exactly the movements of the compasses as they traverse. It is also proposed to carry a perpetual moonlight diffused around the ship, emanated from an electric light planted on the foremast head.

"Up to the present time £350,000 has been expended upon this wonderful construction, and by the time the vessel is ready for sea, this sum will have been augmented into nearly £800,000. It will, however, be understood that there is a fair capacity to the vast vessel for yielding a revenue ample enough to render the undertaking a commercial success, notwithstanding this great cost, when it is borne in mind that the fares for a single outward or homeward passage to India or Australia for the three classes be fixed only at £65, £35, and £25 respectively, the passage money alone for the voyage out and home would amount collectively to something beyond £300,000 if all the berths were occupied."

In 1857 the Great Eastern was launched. The vessel moved only two feet and then stuck. Other attempts were made later, but she was not finally fully afloat until

the latter part of January, 1858. So much extra money was spent in launching the vessel that the Great Eastern Steam Navigation Co. was practically ruined and as they had not the money to finish her she was taken over by another concern and finally completed. On her trial trip six men were killed by an explosion of one of the boilers. It had been planned that she would be used for passenger service between England and India, but, on her first ocean trip, she sailed from Southampton, on June 17, 1860, with New York as her destination and arrived in 11 days, her best day's run being 333 miles. Although she was designed to carry 800 first cabin passengers, 2000 second class, and 800 third class, or 10,000 troops on this first voyage, she carried but 36 passengers, but on her homeward voyage she did a little better having carried 212 passengers and a large cargo. As a troopship she carried 2124 soldiers to Canada at the time of the Trent affair. In her outward voyage she met with difficulty in a gale and was almost lost through her steering gear becoming deranged.

She proved most useful in the work of laying the Atlantic cables in 1865, and she was employed on this service for a number of years. In 1886 she was bought by a tea firm and used as a show room and advertisement. This great ship's total cost including the expenses of the launching were in the neighborhood of £1,570,000 and in 1890 she was sold and broken up. Thus ended the career of the Great Eastern, one of the most unlucky ships from start to finish that has ever been built, but she has a special significance in steamship history.

In about the year 1880 steel was beginning to supersede iron in steamship construction and everything having to do with these vessels' construction advanced apace. It was during this time that wonderful ocean greyhounds were successfully launched each successively gaining for itself the title of the fastest and finest ship afloat. During this time ships like the Oregon, of the Cunard and Guion Lines; the City of Rome of the Inman Line; the America, National Line; Britannic, Teutonic and Majestic of the White Star Line, and the Umbria and Etruria, also of the Cunard were built and put on the Atlantic lane, and these ships represent well the typical passenger liner of that period.

This practically brings us to the present day, the present day with its scarcity of ships and the great possibilities thus offered to Americans who wake up to get again into the ocean carrying trade. America has the raw material, the man power and the equipment to build better ships for less money than any other nation, and just at this time when the one crying need of the nations that are fighting for humanity is ships, it is the duty of every patriotic American to come out of the little rut he has been traveling in since he left school and to look back through the mist of yesterday to learn what other men have accomplished and gained through seeking their fortunes through the sea.

[The writer is indebted to Fletcher's "Steamships" for the illustrations accompanying this article.]

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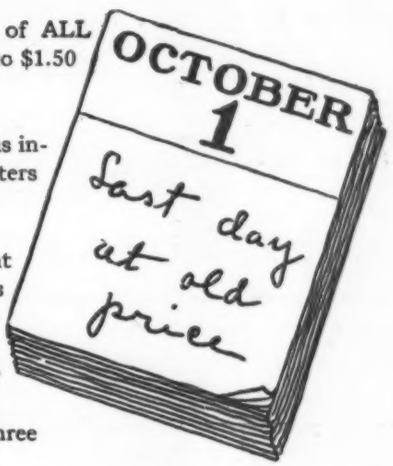

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